AUG 25 1911

INDEX TO ADVERTISEMENTS PAGE 64

SPECIAL FEATURES IN THIS NUMBER, PAGE 20

Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Volume XI. CHICAGO, ILL, AUGUST 22, 1911. Number 2.

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributers of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydratine's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

Charleston, S. C. Birmingham, Ala. Atlanta, Ga. New Orleans, La

DEXTER Portland Cement

THE NEW STANDARD

Sole Agents SAMUEL H. FRENCH & CO. Philadelphia



UNION MINING COMPANY

Manufacturers of the Celebrated

MOUNT SAVAGE FIRE BRICK

GOVERNMENT STANDARD.

DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to

Lime Kiln and Cement Kiln Construction

Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

UNION MINING CO., Mount Savage, Md.

CAPACITY, 60,000 PER DAY. ESTABLISHED 1841.

Phoenix Portland Cement

UNEXCELLED FOR ALL USES.

Manufactured by

PHOENIX PORTLAND CEMENT CO.

NAZARETH, PA.

Sole Selling Agent, WILLIAM G. HARTRANFT CEMENT CO. Real Estate Trust Building, PHILADELPHIA, PENNSYLVANIA.

Ottawa Silica Co.'s Washed White Flint Sand

Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.

OTTAWA SILICA CO., Ottawa, Ill.

FOR GRIFFIN TUBE AND BALL MILLS

CHICAGO BELTING CO.

PURE OAK TANNED LEATHER BELTING

Send for Our Illustrated Catalog

111 North Green St., CHICAGO

Branches: NEW YORK PHILADELPHIA NEW ORLEANS PORTLAND, OREGON

FOR DAMP PLACES

Uniformity — Fineness

ATLANTIC & GULF PORTLAND CEMENT CO.

SALES OFFICE BIRMINGHAM ALA

PORTLAND TRADE COOSA MARK CEMENT

KIRKPATRICK SAND & CEMENT CO. GENERAL SALES AGENTS

RAGLAND, ALA.

Capacity, 3000 barrels daily

HARBISON-WALKER

LIME AND CEMENT KILN LININGS

YOU *know* what the linings for your cement and lime kilns cost per thousand brick but *do* you know how much per *ton* output? *That* is the cost that is vital, that's why we are anxious you *should* know. Write us.

Harbison-Walker Refractories Co.

PITTSBURGH PENNSYLVANIA

HIGHEST GRADE PORTLAND CEMENT MANUFACTURED

ALLENTOWN PORTLAND CEMENT COMPANY

CAPACITY 1,000,000 BARRELS YEARLY

This Front Seat

FOR SALE

A Chance to Secure Space on Our Front Cover Will Not Occur Again in Years

The Ironton Portland Cement Co.

Manufacturers of the

Celebrated Limestone Brand of Portland Cement

Used by the Railroads in Kentucky, Ohio, West Virginia, and Virginia during the past five years.

Cement as finely ground as any on the market.

Guaranteed to pass all the standard specifications.

Plant located at Ironton, O., within easy access to seven States, namely, Ohio Indiana, Kentucky, West Virginia, Virginia, Tennessee and North Carolina.

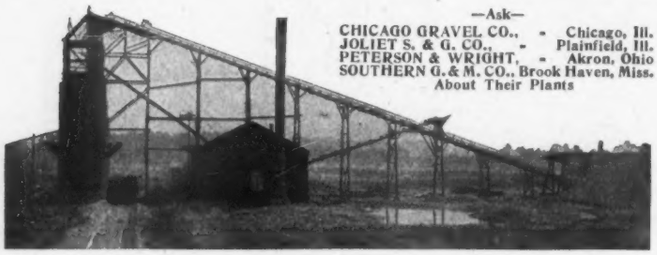
Shipments via the N. & W. Ry., C. & O. Ry., C. H. & D. Ry., D. T. & I. Ry., or Ohio River.

Write for Prices

The Ironton Portland Cement Co.

Ironton, Ohio

GRAVEL WASHING PLANTS



—Ask—

CHICAGO GRAVEL CO., - Chicago, Ill.
JOLIET S. & G. CO., - Plainfield, Ill.
PETERSON & WRIGHT, - Akron, Ohio
SOUTHERN G. & M. CO., Brook Haven, Miss.
About Their Plants

Stone Crushing Cement and Power Plants

J. C. Buckbee Company, Engineers, CHICAGO

ONE GRADE—ONE BRAND

Alpha Portland Cement

Best in the World for Sidewalks

Write for our Handsomely Illustrated Book. Sent Free.

General Offices: No. 7 Centre Square, EASTON, PA.

——SALES OFFICES:——

The Oliver Bldg., PITTSBURGH.
Builders Exchange, BALTIMORE.
Marquette Building, CHICAGO.
Harrison Building, PHILADELPHIA.
Builders Exchange, BUFFALO
Board of Trade Bldg., BOSTON.
Hudson Terminal Bldg., N. Y.
Nat'l Bank Bldg., SAVANNAH, GA.

"THE BEST IS NONE TOO GOOD"

HIGHEST GRADE of Portland Cement

Every Barrel Absolutely Uniform.

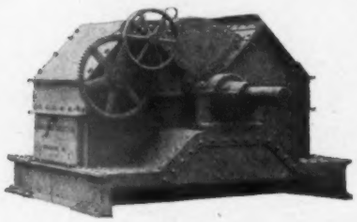
R. R. facilities especially adapted for prompt shipments in the northwest.

Capacity 1,500,000 bbls. Yearly.

NORTHWESTERN STATES PORTLAND CEMENT COMPANY

MASON CITY, IOWA

"PENNSYLVANIA" HAMMER CRUSHERS



For Pulverizing Limestone, Lime, Cement Rock, Marl, Shale, Etc.

Main frame of steel; "Ball and Socket" Self aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running.

No other Hammer Crusher has such a big Safety Factor.

PENNSYLVANIA CRUSHER CO.

Philadelphia

New York Pittsburgh



83,333 FREIGHT CARS

If the capacity of the eleven mills of the Lehigh Portland Cement Company, was put in box cars, it would fill 83,333 cars. Placed end to end on a track, these cars would cover 265 miles.

Can you figure a better reason than this why you should handle

LEHIGH PORTLAND CEMENT

It means that when you want a car of cement you can always be sure of getting immediate shipment. This is well worth considering, as delay in shipment often means loss of business to you.

THE LEHIGH PORTLAND CEMENT CO.

HEAD OFFICE, ALLENTOWN, PA.

MAIN WESTERN OFFICE CHICAGO, ILL.

YOU CAN'T FADE 'EM

RICKETSON'S MORTAR COLORS

There's one "best" in every line, but that is not always best for everyone concerned. In the building trades

Ricketson's Mineral COLORS

are acknowledged to be the best choice for *everybody*. Best for the architect because purest. Best for the contractor because they go farther. Best for the owner because they never change their color.

For Mortar, Brick, Cement, Stone, Etc.
Red, Brown, Buff, Purple and Black

RICKETSON MINERAL PAINT WORKS MILWAUKEE, WIS.



Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Volume XI | CHICAGO, ILL., AUGUST 22, 1911 | Number 2

CONCRETE WORK IN LA SALLE TUNNEL

75,000 Barrels of Cement Used in the Execution of a Great Engineering Project that Marks the Beginning of Chicago's Subway System.

The new La Salle street tunnel for the use of the Chicago Railways Company that has been in process of construction the past year and a half will be completed this fall. It presents many things of interest to cement men for the reason that it is one of the largest pieces of cement engineering work, and the most difficult, in the city, and from a public point of view, it is important, as it is the beginning of Chicago's subway system that in a few years will extend to all sections of the city underground.

The tunnel is 2,000 feet long, extending from the north side of Randolph street in the south division to the north side of Michigan street on the north side. In this work 40,000 yards of concrete has been used, and 2,000,000 pounds of reinforcing bars. The cost will be $1,250,000. The bars were furnished by the Illinois Steel Company and the cement by the Marquette Cement Manufacturing Company. The Dolese & Shepard Company furnished the limestone screenings and the stone.

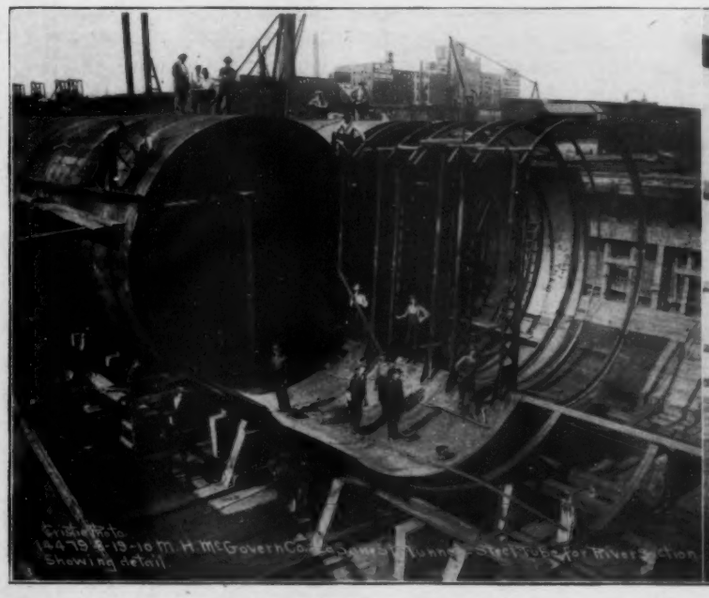
The data furnished ROCK PRODUCTS by H. H. Hanink, engineer in charge of the work for the McGovern Company, contractors, shows some of the engineering difficulties that had to be solved. In the first place the original plans provided for a cofferdam across the river in which the river section was to be laid in place. But the government would not permit this obstruction of navigation and the engineer had the problem of constructing the river section of the tunnel elsewhere, towing it to its position in the river and sinking it. This was successfully accomplished, the methods employed being similar to those used in building the Michigan Central tunnel at Detroit. A double steel tube 200 feet long, the width of the river, was constructed at the North branch dry dock, towed to its position and sunk. This double tube rests on a bed of five feet of sand at the bottom of the river. After the tube was sunk to position scows loaded with sand were anchored over it and the sand was forced down below the tube through pipes on each side of the scow. It was at first the intention to imbed the steel tubes in concrete, but the sand bed was considered more economical and fully as satisfactory.

The interior of the tubes was walled up with concrete, forms being erected and the concrete placed through a pipe from a pneumatic mixer, patented by J. H. McMichaels, on the dock. This method of depositing concrete where it would be extremely difficult and costly to place it by hand will be described more at length later on.

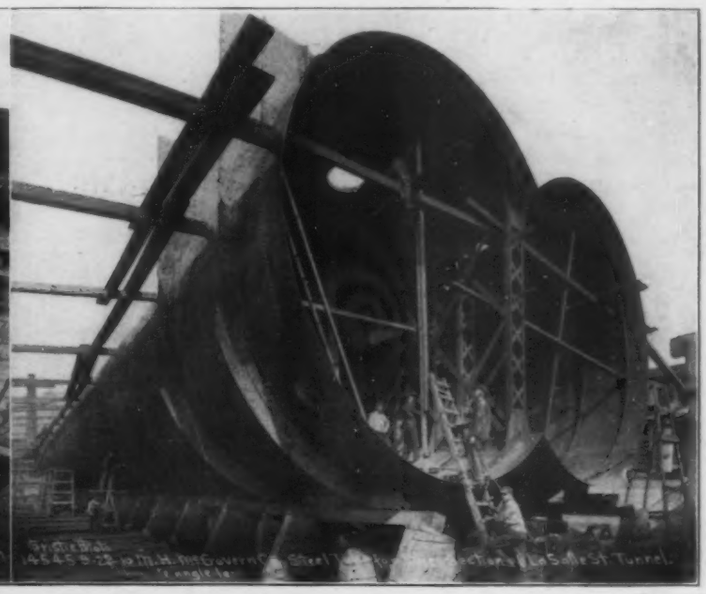
In the side walls of the tunnel and in the arches the mixture is one part cement, two of sand and four of crushed stone. The mixture below the grade or track level is one part cement, three of sand and six of stone. The river section has a double bore tunnel through the steel tubes, while the approaches to it are single bore. The walls of the single bore tunnel are six feet, four inches thick with an arch two and a half feet thick. The double bore has walls four feet, four inches thick with an arch two feet thick. At the lowest point of the tunnel under the river, the bottom of the foundation is 53 feet below the surface of the water. The car tracks are 46 feet below the surface, with a clearance overhead of fifteen feet. The top of the arch, or exterior, is 27 feet below the surface. The width or clearance of the single bore is 30 feet.

Reference has been made to the pneumatic conveying concrete mixer used in depositing the concrete inside the steel tubes of the river section. This is the first work that has been done in Chicago with this machine. It was made by the Drake Machine Works, 1025 Jackson boulevard, Chicago. This machine mixes and discharges the batch through a pipe line under compressed air pressure directly into the forms, eliminating at the discharge end of the mixer all hoists, carts, wheelbarrows, cars and the cost of labor necessary to operate them. As an economic addition to the cement industry it is strikingly important. As all know who have had anything to do with concrete, a large part of the expense on many concrete jobs is piled up at the discharge end of the mixer in conveying the mixture from the machine to the place where it is to be deposited. The rate of progress in the work is also de-

(Continued on Page 51.)



DETAILS OF TUBE CONSTRUCTION.



THE COMPLETED TUBES OF STEEL.

Power & Mining Machinery Co.

MILWAUKEE, WIS. U. S. A.

District Offices:

Chicago New York City Atlanta El Paso San Francisco

"Half the size, Half the weight; Half the height, Half the freight."	TO WHICH MIGHT ALSO BE ADDED:	*"Half the efficiency, Half the life; Half the success, Double the strife."*

All the above at the same price of a real crusher, too, such as the

"McCULLY CRUSHER"



McCULLY CRUSHERS ARE NOT SOLD BY RHYME BUT BY REASON

By reason of their unequaled capacity and wearing qualities on rock and ore of any degree of hardness, and WITHOUT MELTING ANY BABBITT.

By reason of not requiring pumps for circulating the oil.

By reason of not requiring any cooling system for cooling the oil.

By reason of their unequaled efficiency under any and all conditions of service.

By reason of their unequaled economy due to minimum power, oil and repairs required.

By reason of many other "reasons",—too numerous to mention here, but which are contained in our new Catalog No. 4-R which is just off the press.

DO YOU WANT IT? THEN SEND FOR IT. IT'S FREE.

Principal Products

ROCK CRUSHING MACHINERY MINING AND SMELTING MACHINERY

CEMENT-MAKING MACHINERY

WOOD IMPREGNATING PLANTS POWER TRANSMITTING MACHINERY

LOOMIS-PETTIBONE GAS GENERATORS

SUCTION GAS PRODUCERS

Write for Catalogs on any of Above, Mentioning this Journal.

The Crushing Bowl is Bigger

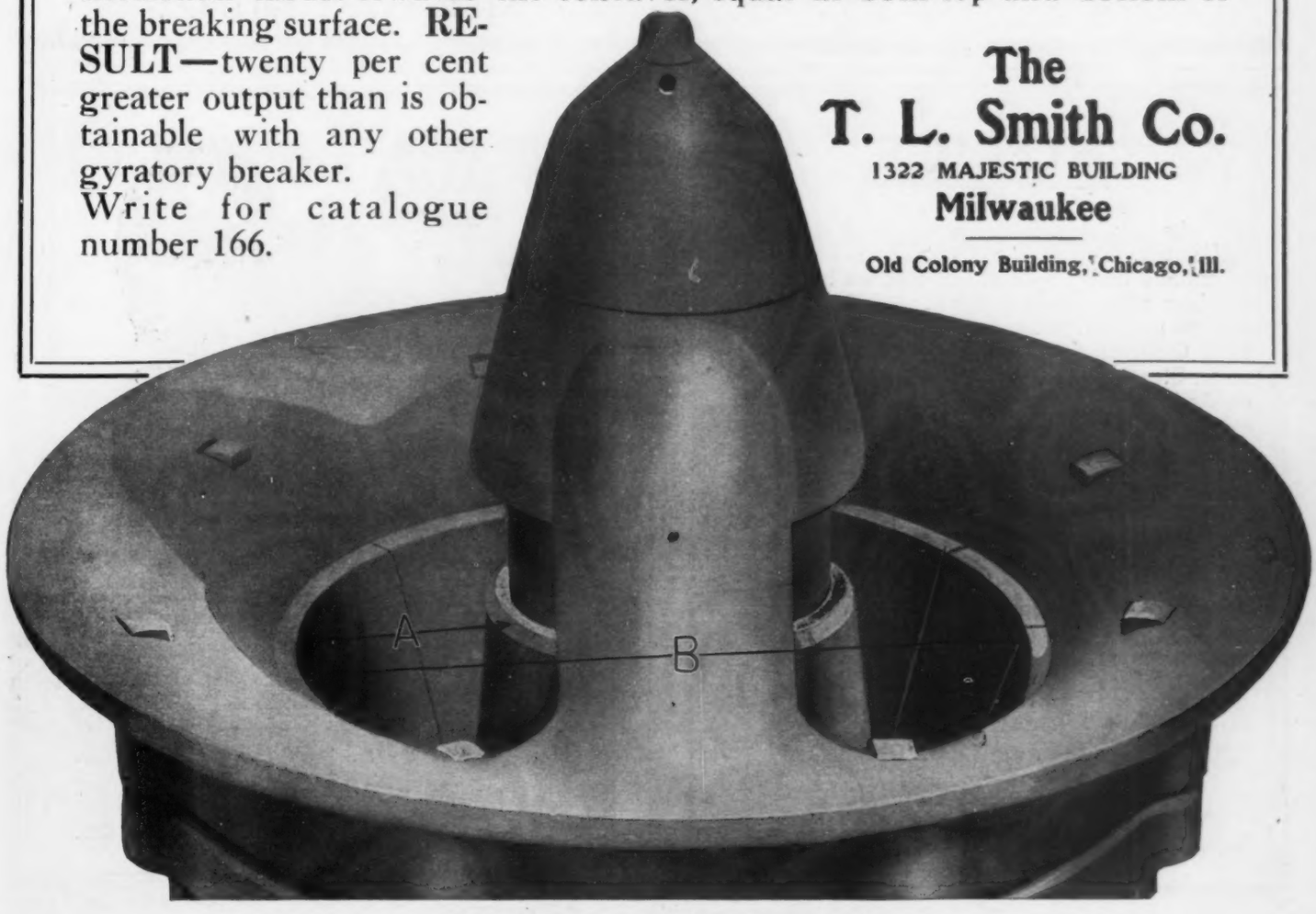
From top of concave to top of head (dimension "A" in picture below), size for size, the **SYMONS CRUSHER** measures the same as any similar breaker; but the diameter of the Symons crushing bowl (dimension B), is greater than that of any other gyratory, this advantage in size ranging from 2 to 10 inches. A comparison of catalogs will verify this statement. Other things being equal, the bigger the crushing bowl, the bigger the capacity of the crusher. But the "other things" also favor the

Symons Crusher

A comparison in crushing action is likewise strikingly favorable. The **SYMONS** head has a **uniform stroke throughout its entire length.** The eccentric being inside instead of below the head, it produces a straight, horizontal thrust towards the concaves, equal at both top and bottom of the breaking surface. **RESULT**—twenty per cent greater output than is obtainable with any other gyratory breaker.
Write for catalogue number 166.

The
T. L. Smith Co.
1322 MAJESTIC BUILDING
Milwaukee

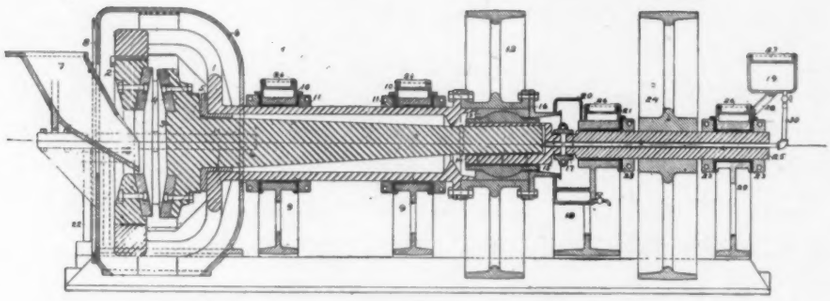
Old Colony Building, Chicago, Ill.



DISC CRUSHERS



THE PRINCIPLE



WARNING

Boston, Mass., July 7, 1911

ALL persons, partnerships, and corporations, are hereby warned not to make, use or sell, without the consent of the Sturtevant Mill Company, any Disc Rock Crushing Machine that is protected by United States Letters Patent numbered respectively 641,654, 988,403 and 977,235.

Said patents are owned by said Sturtevant Mill Company, and others have no rights whatsoever in said patents. The attorneys of said Sturtevant Mill Company are directed to proceed against all who disregard this warning. The above cuts illustrate the type of Disc Crushers protected by said patents.

STURTEVANT MILL CO.

NOTICE

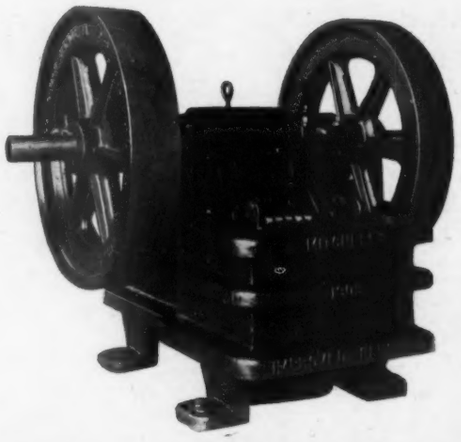
As you may know, we created the DISC CRUSHER. We own the SYMONS DISC CRUSHER inventions under patent No. 982,899 and serial numbers respectively 469,306, 493,306, 540,119, 550,563 and 551,200, which absolutely control the DISC CRUSHER art. We also own exclusive rights under Sturtevant patents numbered respectively 641,654, 988,403, and 977,235, and other pending applications; these rights being distinctly embodied in a written contract under date of September 12th, 1910, signed by Symons Brothers and by the Sturtevant Mill Company, per Thomas L. Sturtevant, president, H. B. Ellis, treasurer, and by Thomas J. Sturtevant.

We will protect our customers and prosecute all infringers of any of the above patents.

Pay no attention to bullying bluffs from those who have the "nerve" to threaten our customers, but not the nerve to sue us.

SYMONS BROTHERS

Majestic Building, -:- Milwaukee, Wis.



There Are Reasons for Mitchell Crusher Superiority

Study the cross sectional view of the Mitchell Crusher and you will see at a glance why it is different from any other crushing machine. The motion of the movable jaw tends to produce a more uniform product with a very great saving in power. The crusher is *adjusted in a jiffy* to produce *material in any size* from 2½" even as fine as sand.

There are only 14 parts which greatly eliminates the possibility of wear and breakage. We can show you where you can profiit by using a Mitchell Crusher.

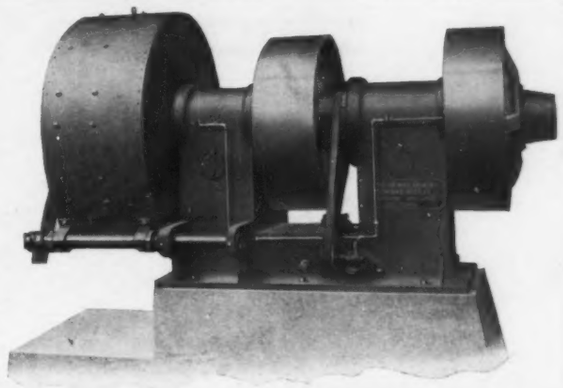
State your proposition clearly. Let us know what you have to crush, how fine you want to crush it, and what capacity you can use in a 10 hour day.

You will be glad to have our 60-page catalog describing our 15 sizes. Send for catalog 7 R.

EUREKA STONE AND ORE CRUSHER CO.

CEDAR RAPIDS, IOWA

We Have Over A Hundred Good Active Agents



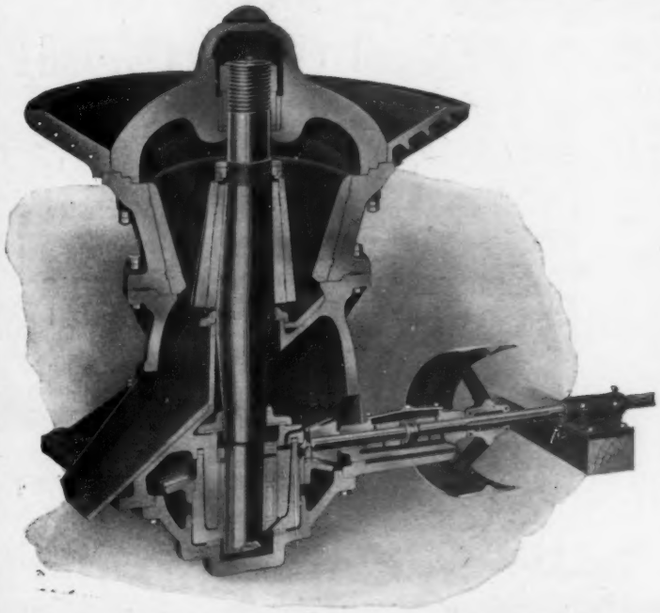
They work from morning 'till night,
—some of them all night long.
Their places of business dot the map.
They tell the same story of success.
They never get tired.
They talk through deeds, — not words.
Their arguments are unanswerable.
We pay them no salary. They pay us
A good bunch of workers, these SYMONS DISC CRUSHERS, controlled by companies that furnish small sized crushed stone.

Our catalogue—you need it—glad to send it. Write us

SYMONS BROTHERS, MAJESTIC BUILDING MILWAUKEE, WISCONSIN

TRAYLOR ENGINEERING & MFG. COMPANY

ROCK CRUSHING MACHINERY, CEMENT MAKING MACHINERY, MINING, MILLING AND SMELTING EQUIPMENT



MAIN OFFICE: 30 CHURCH STREET, NEW YORK
WORKS: ALLENTOWN, PA.

Middle West Agents: MARSH CO., Old Colony Bldg., Chicago

Jaw Crushers built up to size 72 in. x 96 in.

Crushing Rolls built with Automatic Side Adjustment

The TRAYLOR GYRATORY CRUSHER is the only one made that has a running reservoir of oil encircling the full height of the eccentric bearing.

Are You Interested in Our Catalog Just Off the Press?

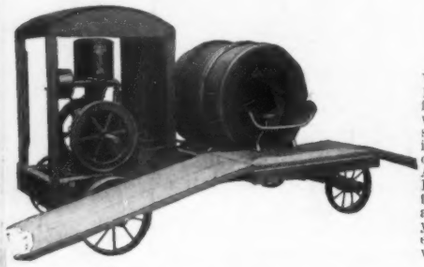
TO ANY ONE WHO WILL INVESTIGATE

There is a Fact That Compels Conviction That
The Eclipse Low Charging Concrete Mixer

SAVES MONEY

Saves in the first cost of the machine, saves in power, saves in fuel, saves in manuel labor, saves in attendance of the machine, saves in portability, saves in delays and saves in repairs.

Figure all of this saving and the aggregate saving is so important that the greater economy must be evident to you.



Immediate Shipment

We carry a stock of about 100 Eclipse Mixers at our factory, branch houses, ware rooms, stores and sales agencies ready for immediate shipment the day your order is received. And don't forget that the Eclipse Mixer is cheapest to buy, cheapest to operate and cheapest when you have figured all the expense when the season's work is through.

Catalog No. 33 describes it. Shall we send the catalog?

The Standard Scale & Supply Co.

1345-1347 Wabash Ave., CHICAGO

NEW YORK 136 W. Broadway | PHILADELPHIA 35 South Fourth Street | PITTSBURGH 243-245 Water St.



This Swimming Pool Was Waterproofed with

For Concrete Construction — "Ceresit" Waterproofing — For Cement Mortar

is an integral waterproofing which uniformly permeates the entire mass of concrete or cement mortar and permanently keeps the water out even when subjected to the greatest pressure.

Ceresit waterproofing increases the density of concrete. Does not alter its color nor does it impair the tensile strength of concrete.

Ceresitized concrete is not injured by surface scratches or chips because the entire thickness of the walls or the plaster coating is waterproofed through and through. Do not confound Ceresit waterproofing with mere washes and paints put on the outside surface.

Ceresit has been used for years on all kinds of concrete construction and has never failed to give satisfaction.

It may be used to damp or waterproof cement mortar coatings applied on concrete, brick, stone or tile and in cement pieces and exterior finishes.

A bond will be given as a guarantee on any important job done under the direction of our waterproofing engineers. *Write for our Free Book "J."*

Ceresit Waterproofing Co.

133 S. Clark St. CHICAGO

Branches: 1133 Broadway, New York. 1218 S. Chestnut St., Philadelphia, Pa.

SYMENTREX

The Perfect Finish for all

Exterior Concrete Surfaces

It is water-resisting, sheds all moisture readily and adheres perfectly. It makes a perfect bond with the concrete, becoming a part of that material.

It Won't Peel

Life lasting and a remedy for all discoloration and damages from dampness. It is easily applied and economical. Any color desired can be produced. Beautiful soft effect.

An Ideal Brick and Cement Floor Coating

Prevents dusting or sanding. Oils, grease, etc., cannot penetrate and stain the floor when Symentrex has been used. Constant wear has no effect upon it. Especially suitable for hospitals, public buildings, etc. Makes a sanitary room.

George W. De Smet

Distributor of

Portland Cement, Dehydratine and Hydratite Waterproofing Compounds

Chamber of Commerce Bldg., CHICAGO, ILL.



CONCRETE or STUCCO CONSTRUCTION REQUIRES PROTECTION WITH

The Original

BAY STATE BRICK and CEMENT COATING

Discoloration and damage from dampness are absolutely prevented by this coating. It has been endorsed by the National Board of Fire Underwriters as a fire retarder and is not affected by acids or smoke.

It can be used as an interior tint or decoration.

BAY STATE BRICK and FLOOR CEMENT COATING

wears well and can be washed and prevents dusting. Is used with great success in hospitals and other places where sanitary requirements are necessary.

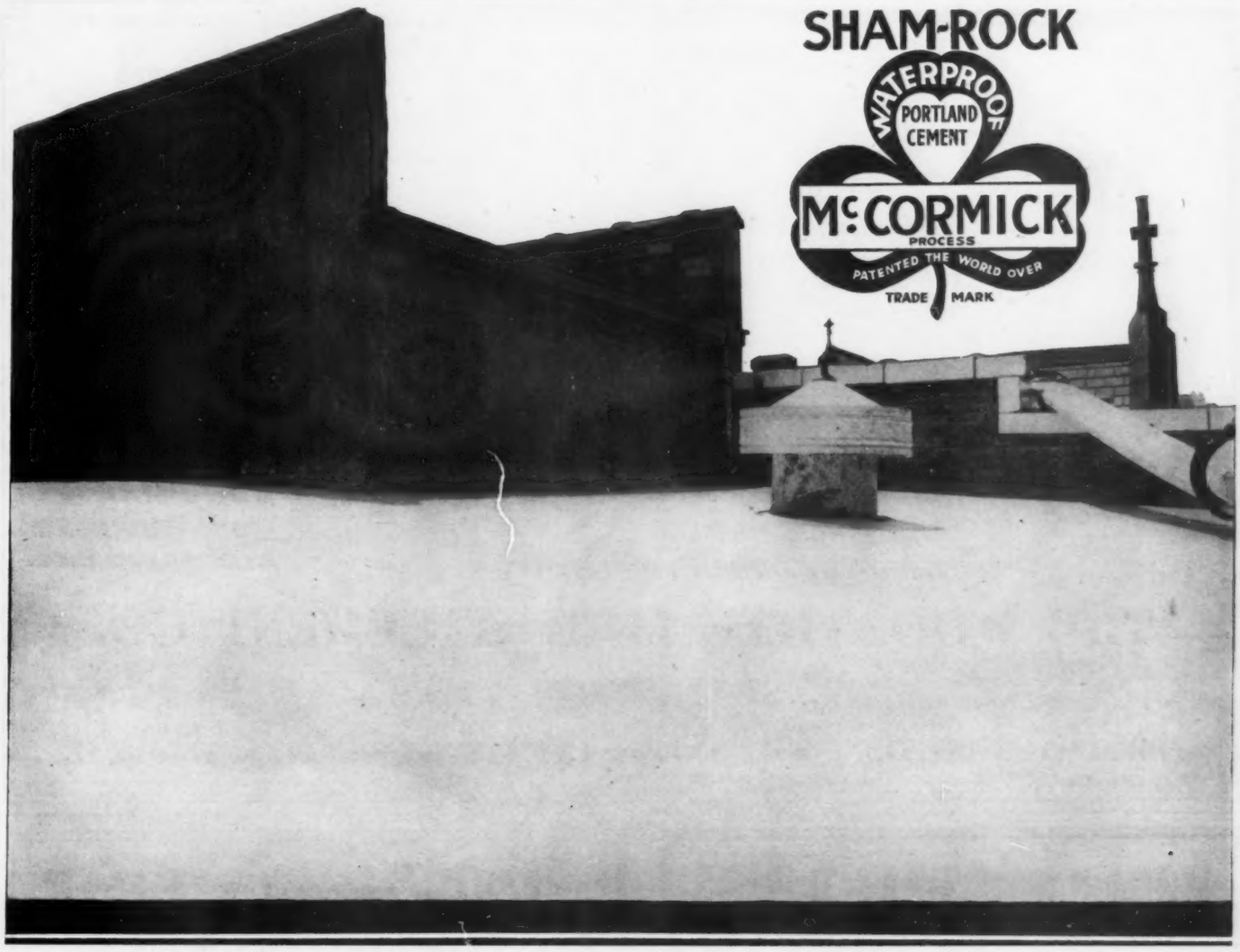
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Paint and Varnish Makers and Lead Corroders

82-84 Washington St., Boston, Mass.



WATERPROOF REINFORCED CONCRETE ROOF. UNION ELECTRIC CO., SHUBERT THEATER, ST. LOUIS.

This is a reinforced concrete roof built of Portland cement waterproofed by the McCormick Process

No more roof repair bills. You save more than one-half the cost of ordinary roof construction. Investigate

Any brand of Portland cement mixed with McCORMICK WATERPROOFING COMPOUND at the cement mill, or by the contractor right on the job, in one of our specially constructed mixing machines, will make any concrete structure absolutely uniformly waterproof and alkali-proof. Our mixing machines are loaned free. The price of our compound is 7 cents a pound f. o. b. any R. R. station in the U. S. Write nearest office for facts.

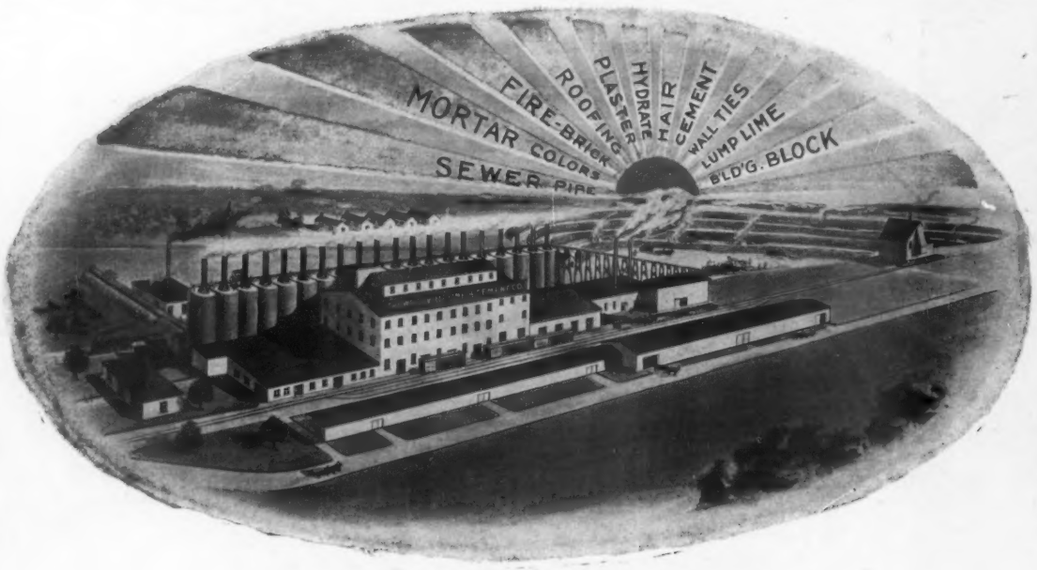
7 Cts. Per lb. f.o.b. ANY R.R. Station in U.S.

McCORMICK WATERPROOF PORTLAND CEMENT COMPANY

Executive Office: Bank of Commerce Bldg., ST. LOUIS

NEW YORK, 92-94 Liberty St. PITTSBURG, Keyston Bldg. CHICAGO, Chamber of Commerce
TOLEDO, 109 Michigan Ave. BOSTON, 10 Oliver St. KANSAS CITY, Reserve Bank Bldg.

Tell 'em you saw it in ROCK PRODUCTS



White Enamel Finish

LET US PUT A FEW RAYS OF SUNSHINE IN YOUR BUSINESS

"THE BEST UNDER THE SUN"

THE WOODVILLE LIME & CEMENT CO.

Manufacturers Wholesalers of **BUILDING MATERIALS**

Mill at Woodville, O. **Offices: 1341-48 Nicholas Bldg., Toledo, O.**

MONARCH HYDRATED LIME

Cheaper and Better than LUMP LIME

MONARCH HYDRATED LIME

Its value to you is greater because—
—It costs less to handle—
—It can be thoroughly soaked in 24 hours—
—No screening required—
—Carries more sand—
—Gauges with a third less plaster—
—Spreads further—
—Easier—
—Will not air slack—

You will be a MONARCH MAN if you once try MONARCH HYDRATED LIME.

Our prices satisfies. Write us.
"We ship sudden"

The National Lime & Stone Co.

CAREY, OHIO

MITCHELL LIME

Is Chemically Pure and Practically Free from Waste

The Strongest White Lime on the Market. Used and recommended by Sand-Lime Brick Manufacturers, Chemists, Soap and Glue Works, Plasterers and Masons.

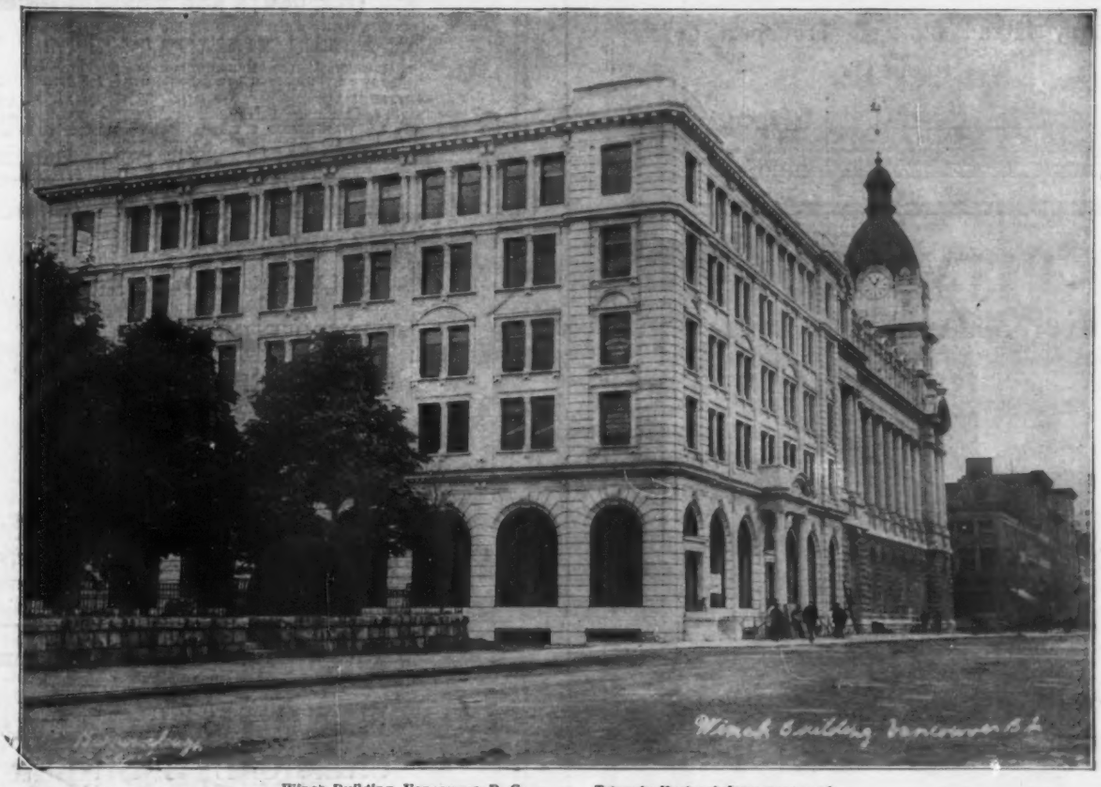
Prices Cheerfully Submitted

Mitchell Lime Company

Office: 521 Peoples Gas Bl'dg. CHICAGO, ILL.

Works: MITCHELL, IND.

Triangle Mesh Concrete Reinforcement



Winch Building, Vancouver, B. C. Triangle Mesh reinforcement used.

Made by

American Steel & Wire Co.

CHICAGO, NEW YORK, DENVER, SAN FRANCISCO.

WRITE FOR ILLUSTRATED PAMPHLET

United States Steel Products Co., 30 Church St., New York., Export Representatives

Tiger Brand White Rock Finish

is applied on more high class buildings in the United States than all other brands of finishing lime combined.

It is the Standard by which All Other Brands are Measured

It is a safe, dependable product. Dealers who handle it are bound to have the best plastering trade on their books.

May we send you a quotation?

The Kelley Island Lime & Transport Co.
Cleveland, Ohio

Farnam "Cheshire" Lime Co.

OF CHESHIRE, MASS.
MANUFACTURERS OF THE
Celebrated Cheshire "Finishing" Lime

Well known throughout New York and the Eastern States as the finest finishing lime manufactured. The special feature of this lime is its quick and even slacking, thus preventing any cracking or checking when put on the wall. It is the best lime used in the country today for all

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Selling Department, 39 Cortlandt St., N. Y., C. J. CURTIN, Pres't.

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Brown Hydraulic Lime, Austin Hydraulic Cement, Jasper Wall Plaster, Brick, Stone

CEMENT WORKS: Austin, Minn
PLASTER MILL: Ft. Dodge, Iowa
WAREHOUSE: Minnesota Transfer

MANKATO, MINN.

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Along the Southern Railway and Mobile & Ohio Railroad there are splendid deposits of kaolins; of fire, tile, and brick clays; of cement rock; building sand; building stone; and a number of most desirable sites where local advantages are all sufficient to ensure labor and transportation meeting all requirements. Those looking for best locations where the raw supplies are at hand should write, for detailed information, to

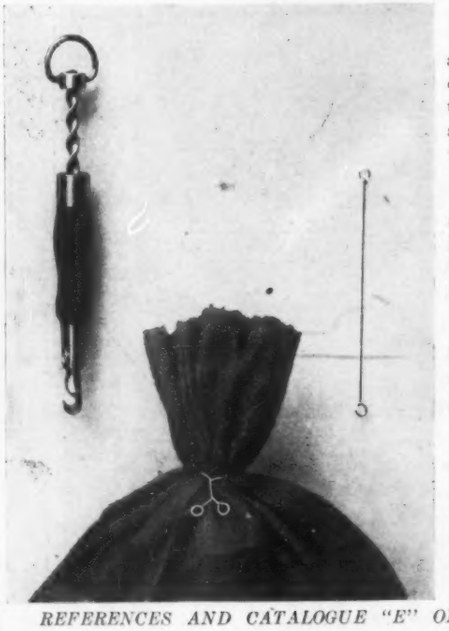
M. V. RICHARDS
Land and Industrial Agent, Southern Railway
1370 Pennsylvania Ave., WASHINGTON, D. C.

OR

CHAS. S. CHASE
Western Agent
Room 702, Chemical Bldg., ST. LOUIS, MO.

The Curry Bag Tyer

is tying over 500,000 bags every day



The wire tie is absolutely secure, quicker in operation, more uniform and cheaper than twine.

It is opened by simply untwisting, no knife can be used—no cut bags.

Eliminates sore hands. Can be used rapidly by green men.

Adopted by all the prominent concerns in the cement, plaster, flour and other bagging trades.

REFERENCES AND CATALOGUE "E" ON REQUEST

Clifford L. Miller & Co.
110 East 23d Street New York, U. S. A.

Whenever you wish to

SELL YOUR STOCK, to
DISPOSE OF YOUR
OLD MACHINERY,
WISH AN EMPLOYEE, or
WANT A POSITION,

REMEMBER that ROCK PRODUCTS can do this for you promptly.

E. SCHMATOLLA
CHEMICAL ENGINEER
OF 150 NASSAU ST., NEW YORK

Designs and builds, since eighteen years, LIME KILNS, particularly with natural draft gas producers, and guarantees, in most cases on kilns, for a daily output of 30 tons or more; at least five tons of burnt lime for one ton of coal. More than hundred gas lime kilns built all over the world for all kinds of rock and fuel. ∴ ∴ ∴

The Ohio and Western Lime Company

WORKS AT
Huntington, Indiana
Marion, O.
Gibsonburg, Ohio
Fostoria, Ohio
Sugar Ridge, Ohio
Tiffin, Ohio
Genoa, O.
Limestone, Ohio
Lime City, Ohio
Portage, Ohio
Luckey, Ohio
Bedford, Ind.

MANUFACTURERS OF AND WHOLESALE DEALERS IN

Ohio and Indiana White Finishing Lime, Ground Lime, Lump Lime, Fertilizer, Hydrate Lime, Cement, Plaster, Hair, Etc., Etc.

MAIN OFFICE: Huntington, Ind. Branch Offices: Marion, Ohio.

Capacity 8000 Barrels Per Day

"IF IT IS **LIME** WE MAKE IT"

Lump - Barreled - Hydrated - Ground

STRONGEST IN OHIO

We are not connected with any Trust or Combination

WRITE US
PHONE US

The Scioto Lime and Stone Company, Delaware, Ohio

CROWN HYDRATE

HIGH CALCIUM HYDRATED LIME

At present prices you can waterproof, improve the color and strengthen the texture of all cement construction and actually **save money**, because the Hydrate **replaces** the same amount of cement (15 to 25%).

Kritzer Vacuum Process

MARBLEHEAD LIME COMPANY

KANSAS CITY CHICAGO

Banner Hydrate Lime

HIGH MAGNESIA FINISHING LIME

Manufactured by the

National Mortar & Supply Company

Office at Pittsburg, Pa. Works at Gibsonburg, Ohio

Enlarged capacity

Tell 'em you saw it in ROCK PRODUCTS

Hydrated Lime

Bulletin No. 41

The Lime Manufacturer who has not installed a Hydrating Plant is losing Money every day.

The Dealer must have a product that he can keep in stock indefinitely without detriment or loss. He cannot afford to lose all the profit on sales made by being compelled to throw away a certain per cent of his stock each month. This is one reason why more Dealers do not handle lime. Why should he, if he makes no profit?

What the Dealer Wants

is an article that is always good, whether made to-day or ten years ago.

Hydrated Lime meets his every requirement.

Let the Dealer thoroughly understand all the merits of Hydrated Lime and where one Dealer handles this commodity now, you will find one thousand who will carry it in stock; and in addition, each dealer will buy in larger quantities as he can sustain no loss.



PLANT OF THE TIDEWATER PORTLAND CEMENT CO.

Many lime manufacturers have installed a Hydrating Plant, but have adopted the policy of trying to conceal this fact from their competitors, belittle the product to other manufacturers but are on a still hunt all the time for increased business.

Is this a Wise Policy?

Some manufacturers will be convinced by the arguments used and they and their salesmen will undermine, to a certain extent, the best efforts of this manufacturer who is playing politics in his business.

Let All Pull Together

show the wonderful possibilities of Hydrated Lime, inaugurate a campaign of information, notify every dealer in the country of all the facts regarding Hydrated Lime, in fact, educate the dealer; make him understand that with this commodity he makes a good profit without a possibility of loss and the lime manufacturer will be astounded at his increase in sales.

These Are Facts

Hydrated Lime can be made as cheaply as quick lime.

The initial cost of installation is not excessive.

The increased sales will soon pay for this cost of installation.

The Lime business itself will be increased many fold.

The Concrete Worker

also reaps many benefits by using Hydrated Lime.

By its use

The concrete works easier under the trowel, hence

It is a time saver, and consequently

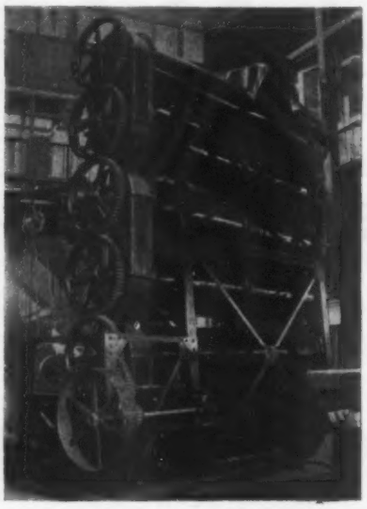
Less men can accomplish more work.

It prevents the mortar drying out too quickly.

It improves the color of the finished work.

It makes the concrete impervious to water.

It improves the strength.



KRITZER CONTINUOUS HYDRATOR.

Our Business

is the Designing and Constructing of Hydrating Plants. By Our Process, The Kritzer Way, you will obtain a Perfect Product. We Guarantee this Absolutely.

It takes about three or four months to build a plant. Do not lose valuable time.

Why not take this matter up with us Now, and get ready for business as soon as possible.

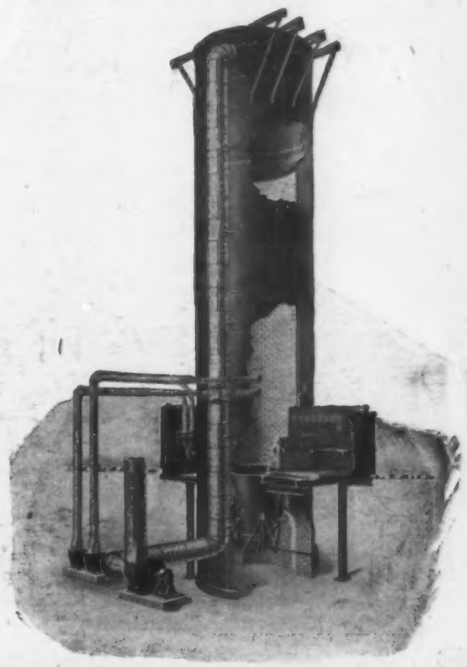
The Kritzer Company

115 Adams Street **CHICAGO, ILLINOIS**

Lime at Low Cost

You are assured of the largest profits only if your plant is equipped with Doherty Lime Kilns—wood fired, coal fired, oil fired or producer fired.

Our Bulletin No. 4 will show you how to make **"more and better lime at less cost."**



IMPROVED EQUIPMENT CO.

COMBUSTION ENGINEERS

Executive and Sales Offices, 60 Wall Street, NEW YORK

Lime Manufacturer

Make your Hydrated Lime the paying end of your business by producing a plaster from which every mortar used in building construction can be made.

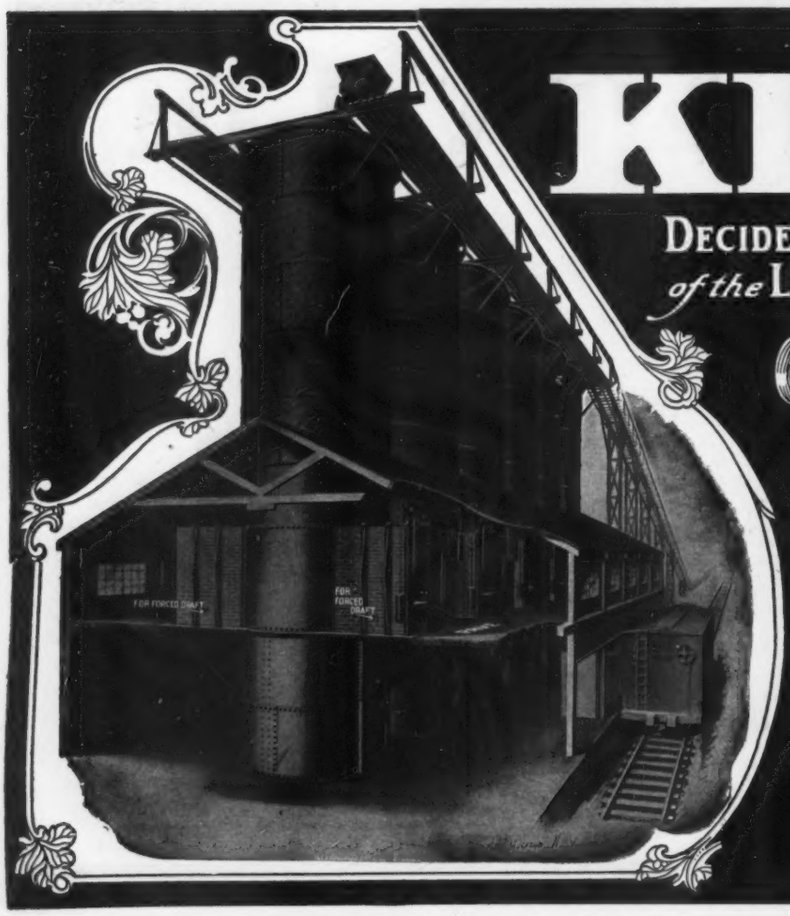
We are in a position to supply "ALCA" in pulverized form, needing no further treatment—add it to your Hydrate, and produce

ALCA LIME PLASTER

The Ultimate Plaster

ALUMINATE PATENTS COMPANY

2211 Chestnut Street, Philadelphia, Pa.



KILNS

DECIDE *the* EARNING CAPACITY *of the* LIME MANUFACTURING PLANT

THE KEYSTONE LIME KILNS
(Patented)

are famous money makers and express the highest type of modern developement. There's none quite so good, and the price is right.

FULL PARTICULARS WILL BE CHEERFULLY FURNISHED

STEACY-SCHMIDT MANUFACTURING CO.
YORK · PENNA

FOR BLASTING

Use the World's Only Successful Substitute for Dynamite

TRADE MARK **DYNALITE** REGISTERED

TWO PATENTS

DISCRIMINATING CONSUMER
WEIGHING THE POINTS OF SUPERIORITY



Water Grade
DYNALITE "Weigh" a-head

For Crushed Stone and Silica Sand Quarries, Contractors, Stump Blasting, Ore and Slag Shooting, Clay and Shale, Oil and Gas Wells, Etc.

Safer and Better Than Dynamite. Does Not Explode by Overheating. No Illness.

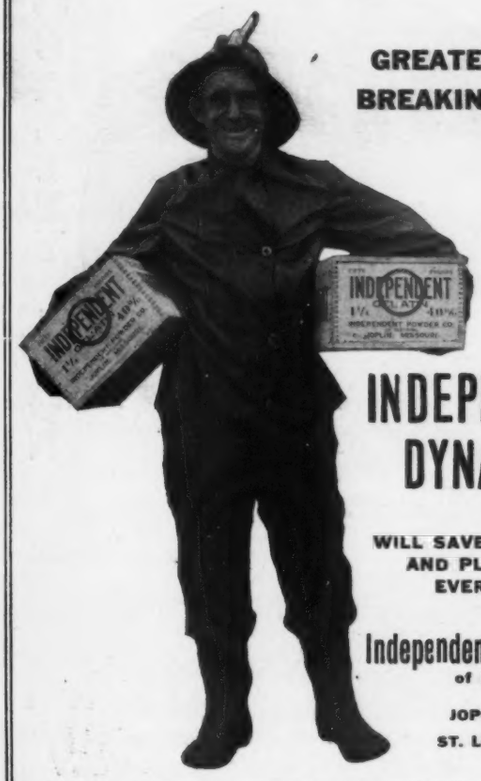
Water Grade—No Thawing.

Manufactured by **The American Dynalite Co.**

LONG DISTANCE PHONES
Magazines: Ottawa, Ill.; Akron, O.; Findlay, O., and others

SOLE OWNERS
Mills near Amherst, O.

ELYRIA, OHIO



GREATEST ROCK BREAKING POWER

IS WHAT YOU WANT

INDEPENDENT DYNAMITE

WILL SAVE YOU MONEY AND PLEASE YOU EVERY TIME

Independent Powder Co.
of Missouri

JOPLIN, MO.
ST. LOUIS, MO.

MAGAZINES AT ALL IMPORTANT POINTS

IS THE EXPLOSIVE QUESTION GIVING YOU TROUBLE?

Are You Obtaining Maximum Results for the Money You Spend?

No one explosive will ever be made that will do satisfactory work in all quarries. The numerous and wide variations in conditions call for many different explosives.

It is vitally important that the right one be used because on this largely depends the ultimate success of the property.

There Is a DU PONT Explosive for Every Need

For many years this Company has employed a large corps of experts and maintained extensive experimental laboratories for the purpose of studying practical conditions, and perfecting explosives to meet them.

Are you using the right explosive in your quarry? Are you sure you cannot get greater results? If this is a doubt in your mind, we offer you without charge the advice of our trained experts to help you solve your problems.

Our HIGH EXPLOSIVES CATALOG No. 115 will be issued soon. It is a veritable treasury of valuable data for the use of explosives. We will gladly send you a copy as soon as it is ready upon receipt of your request.

E. I. DU PONT DE NEMOURS POWDER CO.

PIONEER POWDER MAKERS OF AMERICA

Established 1802 WILMINGTON, DEL.

AETNA

40 per cent Aetna Gelatin is the best explosive for breaking hard rock in wet or dry work, because it contains within a given space the greatest amount of rending power at the right speed for rock breaking. Waterproof, dense, uniform.

THE AETNA POWDER COMPANY

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Knoxville, Tenn. | Chattanooga, Tenn. | Iron Mountain, Mich. | Xenia, Ohio

Tell 'em you saw it in ROCK PRODUCTS

DIRECT HEAT

DRYERS

—FOR—

BANK SAND
GLASS SAND
ROCK, CLAY
COAL, ETC.

All Mineral, Animal and Vegetable Matter.

We have equipped the largest plants in existence and our dryers are operating in all parts of the world. Write for list of installations and catalogue S. C.

American Process Company
68 William Street, NEW YORK CITY

QUALITY SIGN



QUALITY SIGN

MEDUSA PRODUCTS

WHITE PORTLAND CEMENT
For exterior and interior use. Equal or superior to any other White Portland known.

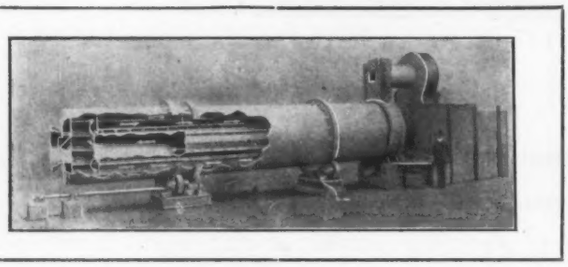
WATERPROOFING
(Patented April 23, 1907.)
Makes Concrete impervious to water and gives absolutely permanent results. Not a wash or an experiment.

WATERPROOFED PORTLAND CEMENT
Ordinary Gray Portland waterproofed with our famous Waterproofing and ready for use.

Obtain illustrated Circulars, Samples and Prices.
Sandusky Portland Cement Co., :: Sandusky, Ohio

Tests Under Working Conditions Show That Indirect-Direct Heat

RUGGLES-COLES DRYERS



Are most satisfactory, most efficient, for drying Cement Rock, Sand, Gravel, Slag, Clay, Phosphate Rock, Slaked Lime, Etc.

The Gases are drawn through the inner shell then back through the material. Exhaust temperature is less than 100° F. This means EFFICIENCY.

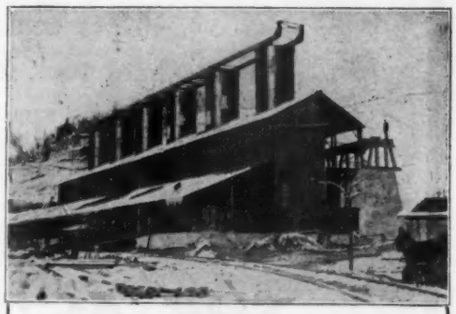
RUGGLES-COLES ENGINEERING CO.
50 Church Street NEW YORK
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THE CUMMER DRYERS

For Mechanically Drying Everything. The F. D. Cummer & Son Co., Cleveland, O.

FOR IMMEDIATE SHIPMENT NEW AND REBUILT MACHINERY FOR CONTRACTORS AND QUARRY EQUIPMENT.
Two Rebuilt Western and Two Rebuilt New Era Elevating Graders, good as new. Twenty Rebuilt Western Wagons. Three 13-Ton Stone Bins. Two No. 2 Gates Crushers "D" Style. Rebuilt Jaw Crushers and Reversible Road Machines of Standard Makes.
HEADQUARTERS FOR Concrete Mixers, Wheelbarrows, Gasoline Engines, Gyratory and Jaw Crushers, Cars, Hoists and everything in Quarry Equipment.
Write us for catalogue and prices.
THE WILLIAMS CONTRACTORS' SUPPLY CO., Columbus, Ohio.

Want to Sell Your Old Machinery? Use Our Classified Section. See Pages 61 and 62



Lime Kilns and Plant of Blair Limestone Co
Canoe Creek, Pa.
Designed by
Henry S. Spackman Engineering Company
42 N. 16th Street Philadelphia, Pa.

CLB246970

ROCK PRODUCTS

ESTABLISHED IN LOUISVILLE, KY., 1902.

DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

Volume XI. **CHICAGO, AUGUST 22, 1911.** **Number 2.**

Publication day, 22nd of each month.

THE FRANCIS PUBLISHING COMPANY

EDGAR H. DEFEBAUGH, PRES'T.

Seventh Floor, Ellsworth Bldg., 537 South Dearborn St., Chicago, Ill., U. S. A.

Telephone Harrison 8086, 8087 and 8088.

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EASTERN DEPARTMENT.

RALPH PEVERLEY, Manager, Room 500, 110 W. 34th St. New York N. Y.

Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.

Every reader is invited to make the office of Rock Products his headquarters while in Chicago.

Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions and Mexico.....$1.00

In the Dominion of Canada and all Countries in the Postal Union..... 1.50

Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.

Advertising rates furnished on application.

Entered as second-class matter July 2, 1907, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879.

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Have you thought about installing a cost system? Think some more. It will save you money.

Many of the cement companies are busy at the state fairs. This is one of the methods being used to educate the farmer in the use of cement.

The sand and gravel producers have been having a good business throughout the season. Improved methods and machinery are revolutionizing the business.

One of the best methods for keeping in touch with your trade is to read the advertising pages. There you will discover something about the new things in your line.

The man who sits with his feet upon the desk waiting for business to come to him is like the man on the milk stool in the middle of the pasture—the cow never comes to him.

They say a sure sign of coming old age is not to care who wins the base ball pennant. Another sure sign of getting to be an old gentlemen is not to advertise your business.

Work has been commenced on the subway extensions in New York and on the subway in Chicago. These projects will consume immense quantities of cement during the next few years.

The cement market has a much better tone than it had a month ago. With the increase in demand comes a natural stiffening of the price. Let us hope that the price-cutting war is at an end.

There is room for a moderate priced cement dwelling, one that is in keeping with the wage-earner's income. The wealthy class are not the only ones who need a fireproof, sanitary, durable home.

The machinery manufacturers have been having a very busy season, as there have been many new plants erected and quite a few of the old ones have made improvements and installed new machinery.

Many miles of concrete streets have been laid in various sections of the country. City engineers are gaining confidence in the proposition, and the many investigations which have been instituted have strengthened the concrete street in favor.

Every piece of stone in the concrete, small and great, has its burden to carry and duty to perform in proportion to its size. So with men. Each one on the job is just as important as his duty amounts to. So don't think you are of small importance.

The Ohio Builders' Supply Association will hold their fifth annual outing at Cedar Point, August 25 and 26. Every retailer in the state should make it a point to be on hand, as there is much pleasure and profit to be had at gatherings of this sort.

Crop reports continue to grow better as the season advances. Every summer we read the same crop scare reports, but when the final reports come in we find they vary very little. We may run a little behind in some sections, but we always make it up in others.

Still the onward march of hard wall plaster continues. The companies producing it are evolving constantly new forms for the usefulness of this valuable material. It will be to the profit of the dealer to keep in touch with the advance of this industry and he will profit by it.

Reports from many sections of the country show building operations going on unabated. There never was a better time than now to build, as materials are as low as they will ever get to be; in fact, they have already taken an upward trend in price. Despite all the pessimistic talk, the retailers of builders' supplies will round up a good year.

The three cement shows at New York, Chicago and Kansas City deserve the whole-hearted support of the industry at large. It is to be hoped that they will be marked with no untoward incidents such as marked the closing of the Chicago show. If the exhibitors have any suggestions to make to the management now is the time to do so.

The two expositions at San Francisco and San Diego which will herald the opening of the Panama Canal in 1915 should also show what can be done with the greatest building material of the age, concrete. Now is the time to plan to have all the buildings built of this material. They will not only then be fireproof, but permanent as well, two most desirable considerations.

New England retailers of builders' supplies held their first annual meeting at Nantasket Beach this month. While the attendance was not as large as might have been expected, still it was fair. This association should wield a tremendous influence in New England when it grows a little larger, and in the meantime every retailer in that section should send in his application and join in the good work.

The agitation for permanent buildings on state fair grounds for the cement and cement machinery exhibits is being revived. The demand from the cement interests deserves the consideration of state fair boards. All that is asked by the cement interests is an exhibition place where all the exhibits pertaining to cement can be shown under one roof. The simple point is that all other exhibits are classified. Why not cement? Much of the educational value of cement exhibits at state fairs has been lost because the exhibits were scattered.

EDITORIAL CHAT

SPECIAL FEATURES IN THIS ISSUE

	Page
Concrete Work in La Salle Tunnel	3
History Makers of the Building Material Industry	20
Home Sweet Home	21
New England Retailers Meet	24
Detroit Retailers	25
German Methods of Cement Manufacture	31
Neptune in Plaster	35
Standardizing Paving Plans	36
International Lime Company	37
Sand Lime Brick's Advance	39
Gold as a By-Product	40
Install New Oil Power Plant	41
Uncle Sam to Build Good Roads	43
Moderate Priced Concrete Homes	50
Concrete Work in Suburbs of Chicago	53
Double-Deck Concrete Sewers	56
Charles River Bridge	57
Concrete House Gets Low Insurance Rate	58
Concrete Statue of Black Hawk	59
Work Started on New York Subways	59
Cement Plaster Ice Box	60

S. Vernon Peppel, long connected with the technical staff of ROCK PRODUCTS died at his home at Leetonia, O., as we go to press.

H. B. Webster, manager of the Peoria Builders' Supply Company, of Peoria, Ill., weighs 304 pounds and stands 6 feet 7 inches in his woolens. It is but recently, however, that Webster had been qualified to compete for the lightweight championship. He lost 25 pounds during the last month and is still losing.

The editor always hates to see anyone lose, but in a cause like this one we do not know whether to offer our sympathies or congratulations.

William H. K. Bennewitz, in discussing the various trade papers, recently paid Rock Products a very high compliment when he said: "I believe every cement manufacturer in the United States gets Rock Products, and what is more I believe they read it, which is something that cannot be said for any other trade paper. It is always snappy and bright, and contains more news than any of the others. I also believe that many of the retailers of building material read the paper because we hear from our advertisements from every section." Mr. Bennewitz is the sales manager for the McCormick Waterproof Portland Cement Company.

The trustees for the Chicago Sanitary District opened bids August 10 for the following work: "A," 7,800 yards of glacial drift; "B," 121,000 yards of excavation in rock; "C," 37,000 yards of rip rap. The lowest bidders were: For "A" work, John Marsh Company, 24c; for "B" work, National Contracting Company and Schnable & Quinn, each 70c; "C," Forschner & Sexton Co., 50c.

S. B. Chittenden, advertising manager of the Lehigh Portland Cement Company, of Chicago, is preparing to spend several weeks at Ohio and Indiana state fairs next month. The Lehigh people will have an exhibit at both Indianapolis and Columbus and Mr. Chittenden expects to spend a week at each place looking after the company's interests.

F. E. Paulson, sales manager of the Lehigh Portland Cement Company, has recently returned from a very enjoyable week's holiday spent in and around Petosky, Mich., and is now back at his desk as hard at work as ever.

Frank M. Clutter, who is the sales manager for the X-L Concrete Stone Machine Co., of Kansas City, Mo., is an old newspaper man and is bringing his knowledge of the publicity game into good use in his new position. No one will be able to sell Frank any advertising "gold bricks," as he is thoroughly familiar with the situation. He is now at work on a new catalogue which will be ready for distribution in the fall. Everybody wishes Frank abundant success in his new position. E. E. Evans, the president of the company, is right up-to-the-minute himself and the combination should prove a strong one.

John W. Budd, City Engineer of Des Moines, Iowa, opened bids August 2 for the improvement of the Des Moines and Raccoon rivers. The Ray Miller Construction Company, of Waterloo, Iowa, was the lowest bidder for the work, their figure being $7,928.65. Other bids ranged up to more than $14,000.

Charles Apple, general manager of the Great Western Cement Company, and Mrs. Apple were visitors in Chicago a few days ago.

W. F. Cowham, head of the Cowham system of cement companies, was a visitor in Chicago during aviation week. His Chicago friends were pleased to know that he has recovered from a recent illness.

LIMEADE.

"Mary, I wish you would make limeade for supper. I had some down town today and I think it would please John this hot day."

Mrs. Newlywed thus addressed the cook and gave no more thought to the matter. At dinner Mary had two glasses on the table filled with a milky concoction. Mrs. Newlywed called Mary in and asked her what was the matter with the limeade.

"Sure, mum, it's good lime. I got it from the plastherer in the new buildin' on th' corner. It was two white lumps and clane as the snow."

A GOOD ANSWER.

When Mr. Holdom, assistant to President Morron, of the Atlas Portland Cement Company, went to New York to assume the duties of his new position he knew very little about Portland cement. "I thought it was something to mend china with and I also had a pretty good idea that dentists used it to fill teeth with," he says.

But he knows more about it now.

The day of his arrival the boys in the Atlas office put up a job on him. Mr. Holdom was at his desk conjuring with the word "cement" when in walked a burly contractor in his working clothes. Mr. Holdom is always courteous and he said kindly

"Well, sir, what can I do for you?"

"I'll tell you what I want to know," said the contractor. "I have a contract to lay a block of cement walk on upper broadway in January and I want you to tell me how I shall keep the work from freezing after I get it laid."

There was a titter in the outside office and a dozen pairs of ears were listening. Mr. Holdom rose from his chair, threw his shoulders back and with his thumbs in the arm holes of his vest paced back and forth across the floor. Stopping abruptly before the waiting contractor, he said:

"I am very glad you asked that question. It is a question that comes up every winter. It is a question that seems to bother you contractors more than any other. I would hate to have had you undertake to lay that walk without first coming to see me. Always do that. I am here for that purpose and I want you to know it. If the other companies would only open their offices to contractors at all times things would be better."

"But about the——"

"Never mind about that. I am coming to that in a minute. Here, have a cigar. If there is anything that makes me delight in being connected with a great institution like this it is the opportunity it offers to make the acquaintance of men like you who have to lay cement walks in January. Just think of the millions who will walk on that cement laid by you. Think of that stream of humanity that will tread its way over that smooth surface on its way to the Great White Way."

"But I want to know——"

"Now do not be in a hurry."

Something fell in the outer office and there was a sound of scurrying feet.

"Isn't this beastly weather we have been having?" asked Mr. Holdom. "I like to be at my desk on days like this, especially when it comes to discussing with men on the firing line questions like cement work in January—I think that was the month you mentioned. Now I will answer your question—wait till spring to lay it."

History Makers of the Building Material Industry

North Berwick, Scotland, immortalized by Sir Walter Scott, the haven of lesser poets, the birthplace of some of Scotland's noblest families, provided to some extent "the spoils" of the wars which raged at intervals between Scotland and England up to the union of the crowns.

Overlooking the German ocean, on the border between the two countries, the inhabitants of this little town, though peace-abiding, had little if any opportunity to develop this natural tendency. Each successive victory of England was signalized by the annexation of their village, only to become part of the Scottish monarch's domains again when victory lay with that country. From the earliest times the town was destined to be a bone of contention between irate monarchs whose whims often led them to confiscate, pillage or lay waste the property of the villagers. Life as they knew it was one continual conflict. In spite of this condition the village thrived. Its inhabitants, mostly of Norman origin, were ever alert, courageous and progressive.

Prominent among the border families was the House of Fraser, whose motto, "Je Suis Prêt" (I am ready), is symbolic of the unsettled times in which they lived. Representatives of this house served with distinction under Sir William Wallace and King Robert the Bruce in the wars waged with England, in return for which extensive lands in the north of Scotland were bestowed upon the family. Here it is recorded that Simon Fraser, eighth Lord Lovat, celebrated for his liberal hospitality, as early as 1603 was trading with France, importing wines, sugar and spices in return for salmon taken from his rivers.

In the year 1825, in the town of North Berwick and of this stock, was born one David R. Fraser, whose ambition to travel, upon reaching manhood, found vent in his immigrating to America. Locating in Chicago, he confined his efforts to perfecting the manufacture of mining machinery, and years later founded the well known firm of Fraser & Chalmers, of which he was president.

David R. Fraser married Miss Lydia H. Scoville in the year 1855 and to them was born a son, Norman D. Fraser, the subject of this sketch. Chicago is his birthplace and February 25, 1857, the date, so that he is now in the prime of life. The Chicago public schools furnished him his early education and later he attended the University of Illinois. In his eighteenth year he entered the firm of Fraser & Chalmers, with whom he was actively connected for a period of seventeen years. Following that he accompanied his father, David R. Fraser, to Erith, Kent, England, and assisted in establishing there the British works of the Fraser & Chalmers Company.

At the termination of this work Mr. Fraser made a trip around the world, returning to the United States after an absence of almost two years.

The cement industry next engaged his attention, and in 1895 he became president of the Chicago Portland Cement Company, then operating a small mill at Hawthorne, Ill. Two years later the company's plant was destroyed by fire and was finally abandoned in favor of the present site at Oglesby, La Salle County, Illinois. In 1898 here was located the new mill, equipped with machinery capable of producing a few hundred thousand barrels annually.

Since then Mr. Fraser has been actively engaged in the manufacture of "Chicago AA" Portland cement, and under his guidance the company has thrived and prospered, as may be learned from the fact that the company's output today exceeds one and one-quarter million barrels annually.

Though the industry is still in its infancy, Mr. Fraser, through his long connection with the Chicago Portland Cement Company, ranks as one of the oldest manufacturers of Portland cement in this country and during which time has not only succeeded as a manufacturer but has devoted considerable effort to the promotion of the interests of the industry in general.

His constant activity is doubtless inherited from the spirit of his illustrious ancestors, "Je Suis Prêt" (I am ready); likewise his sturdy physique, uniform courtesy and unobtrusively confident manner, which commands immediate confidence and respect.

In building up his organization Mr. Fraser selected men of his own caliber and in Thomas Sutton, secretary and treasurer, D. D. Drummond, vice-president and mill manager, and J. U. C. McDaniel, sales manager, he has three aids—men of integrity—each highly proficient in his own capacity

and whose lengthy connection with Mr. Fraser has been invaluable to the best interests of the company.

Mr. Fraser married Miss Arie Adna Prebble, daughter of a distinguished Chicago family, in the year 1883, and to them were born one son and three daughters—D. Ross Fraser, who graduated from the University of Michigan and who is now assistant superintendent at the mills of the Chicago Portland Cement Company, Oglesby, Ill.; Violet Fraser, now Mrs. Daniel Scholles, and Miss Marjorie and Miss Dorothy Fraser.

Mr. Fraser is a member of the Association of American Portland Cement Manufacturers, the National Association of Cement Users, American Society of Mechanical Engineers, Western Society of Engineers, Union League and the Illinois clubs, is vice-president of the Cement Products Exhibition Company, and a Republican in politics.

SPARKS FROM THE FIRE WASTE.

The fire waste of the country is excessive, and is sapping its prosperity. Reduction of the fire waste is an important part of the campaign for the conservation of the national resources.

Fire losses in the United States and Canada in 1910 were $234,406,650, most of them due to carelessness.

Fire losses for the first six months of 1911 were $129,691,750, as against $99,228,900 for the same period last year. If this burning ratio continues, the loss for 1911 will be over $260,000,000. Last year the bulk of the losses came in the last six months.

Fire losses and the cost of fire prevention in the United States amount annually to $450,000,000, or more than the total American production of gold, silver, copper and petroleum in a year.

The cost of fires each year is one-half the cost of all the new buildings erected in a year.

The annual per capita fire waste in the United States is $2.51, in Europe 33c. Cause: The latter has better construction, less carelessness, increased responsibility.

If buildings in the United States were as fire proof as in Europe, the annual cost of fire losses and protection would be only $90,000,000.

New York City spends $10,000,000 a year for fire extinguishment and $15,000 a year for fire prevention.

Of 3,875 known causes of fire in Chicago last year, 1,089 were due to the careless use of matches. Nearly ten thousand matches are scratched every second of the day in this country, every one a possible fire.

Fifteen hundred people are killed and 5,000 are injured annually as a result of fire.

The proportion of insurance capital to insurance liabilities is very much on the decrease. In the past forty years the liabilities have almost doubled, while only $6,000,000 more capital was invested in the business in 1910 than in 1870.

BERT SWETT HAS A VACATION.

Not so very long ago Bert Swett, of the Lehigh, went to West Baden to recuperate after a long selling campaign. It was before Fred Paulsen came to Chicago with his crew of experts. Bert did considerable horseback riding while drinking the waters.

Now, as anybody knows who has ridden a horse much, the exercise is rather wearing on the novice. So after Bert began to ride he did not appear in the dining room, but had his meals sent to his room and the dishes were spread out on the mantel. Bert was thus able to dine in comparative comfort.

"I got home at midnight in Indianapolis," he related, "and quietly stole into the house so that I would not waken my wife. One of the bloomin' blisters was fully as large as the Lehigh trademark on the end of a barrel and very painful. I got into the bathroom without rousing Mrs. Swett and quietly opened the medicine chest to get some talcum powder. By—mistake—I—got—hold—of—some—boracic acid—and—applied—it—to—the—b-b-blister."

Those who were asleep in apartments and houses within a block of the Swett domicile were roused from their sleep by heart rending screams and many rushed into the street, thinking some wholesale slaughter was in progress. There were shouts of "Fire," "Police," "Black Hand," and one man in his pajamas ran to the Swett house with a fish net to catch any person who might leap from a window.

Of course, Mrs. Swett, roused from her sleep in the darkness and hearing shrieks like those that issue from a railroad wreck, could not be expected to be as composed as she ordinarily is, but Bert, fortunately for her, even in the midst of his vocal efforts and contortion work managed to turn on a light and Mrs. Swett beheld, instead of a burglar suddenly gone insane, just her suffering husband.

HOME SWEET HOME.

Community Development Means National Prosperity—Every Retailer Should Be Interested in the Campaign.

Retail trade is being furthered by the national prosperity campaign which is being waged now by thousands of daily and weekly newspapers throughout the country.

The fundamental principle of the campaign is to localize trade. Builders' supply dealers all over the country are active in pushing the work. To improve your own home town will mean to improve your own business. Every step taken toward permanent development of your home town means an easier feeling around the heart, it means a larger bank account and more credit. "Nothing succeeds like success," and the more you have the more you get. Every one can see that there are unlimited possibilities in the campaign. Get the home newspaper interested in the work, get the hardware dealer and the dry goods man to begin pulling for their own town and results will soon begin to show.

To introduce such progressive methods at home is the only way to keep people from going elsewhere for their materials. The retailer should advertise just as the merchant princes in the large cities advertise; and he will get results from his advertising in proportion to the amount of sentiment he creates.

He will bring the people in his own town to a realization of the fact that there is a dealer "at home" who can supply their wants, and supply them cheaper and better than the out-of-town man.

The American Lumberman, in a recent issue has the following timely editorial on the subject:

The responsibility for the existence and success of mail order dealers in general merchandising in the United States rests largely on the retail merchants of the country. This is an unpleasant truth and many thousands of merchants can rightly disclaim any share of the blame for those conditions that have brought about catalogue merchandising, but the indisputable fact remains that the moss-grown type of country store is the root of the evil.

The Limit of Reason.

In the widespread discussion aroused by this campaign much has been said about buying at home. Innumerable newspapers throughout the United States have indorsed the proposition that every patriotic citizen will spend his money in his own community rather than send it away, provided he can get as satisfactory merchandise at as reasonable a price from the home merchant. No greater concession will be made by the consumer. Nor should the merchant ask more.

If a town that can support one good, uptodate dry goods store is afflicted with two or three establishments that are far behind the times—stores that carry incomplete lines of old, out-of-style or shoddy goods—the trade is sure to go to the big cities. Consolidate those shops and there will be enough business to sustain a live dealer who will meet mail order competition and keep the trade at home.

Every retail dealer falls in one of two principal classes: He is progressive or he is not. If he is not he deserves elimination at the hands of his progressive competitor.

An Example of Inefficient Merchandising.

Describing the general store in a town in which he is interested, Forrest Crissey, well known to magazine readers as a writer on progressive business methods, recently said that if the proprietor had put his stock into several cannon, loaded them with heavy charges and shot the goods in through the front windows the result would have been just as orderly, just as businesslike and just as sensible as the present arrangement of the stock. A customer going into this store to buy a certain article is apt to be asked whether he is in a hurry to get it. If not the proprietor will dig it out of the maze of miscellaneous merchandise, more properly termed "stuff," and perhaps it will be delivered the next day. How different from the average store in the big city, where every salesman must know all the goods in his department or risk the loss of his job!

Consumer the Final Arbiter.

In the long run the consumer is the final arbiter between retail merchant and catalogue house. He may be unreasonable in his demands; he may expect wholesale prices and long credit and many other things the dealer can not afford to grant. Nearly always he is open to conviction on these points. But no amount of argument will convince him that he ought to pay more money for goods bought of the home merchant than he would have to pay for the same goods bought from a catalogue house, or that he ought to take inferior merchandise or goods he does not want when someone stands ready to supply his every need.

Better retail merchandising is an absolute necessity. It must come or retail merchants will pay the penalty of their failure.

Charles L. Johnson, the sales manager of the Great Western Portland Cement Co., of Kansas City, is bearing up well under the strain of the conflict in the Kansas City district. Charlie manages to keep his mills running full time and manages to slip up on enough good orders while the other fellows are not looking to keep Charlie Apple, the genial general manager of the company, from having heart failure.

INFORMATION WANTED.

Through the means of our Information Bureau we learn of an existing demand for crushed granite in various parts of the country. A great many of the inquiries are for granite which will impart a color to concrete. Producers of crushed granite will please send us their names and give us the kind and quantity of output.

Chicago parties also want information as to where they can secure very dark blue torpedo gravel, size one to four. Write to this office for particulars.

THE APPALACHIAN EXPOSITION.

Cement and cement products will be one of the features of the Appalachian Exposition, Knoxville, Tenn., September 11 to 30, 1911.

The eastern part of Tennessee contains a large amount of hydraulic and Portland cement material, both rock and for mixing in preparation. These all will be exhibited at the Exposition. The marble lime, when ripened with water for several months, becomes a cement, and has lasted in building construction for over a half century, without deterioration, and as a plaster is almost unbreakable. The use of cement and concrete work has grown very rapidly in the South, although there are several cement product industries. Knoxville is a city of bridges, and the replacements are entirely of concrete, even in road construction, some of the counties are replacing gradually its wooden and steel bridges with concrete structures. Limestone, dolomites and trap rock are used in concrete.

Last year the Exposition was attended by 400,000 paid admissions, and expectations from present indications are that the admissions will reach 500,000.

WHICH GOT THE ORDER?

A man in a town not a thousand miles from Chicago planned to build a business block. He decided to use hard wall plaster on the interior walls, and his mind was fixed on a certain brand that he wanted to use. There are two dealers in the town and he went to see them about the matter.

As he entered the office of the first dealer the proprietor sat with his feet on his desk, gazing vacantly out the window.

"Well, John," said the intending builder, "I have about decided to put up that building."

"Well, you always were a man of nerve," said the dealer. "Here are all the farmers complainin', crops dryin' up and another presidential campaign comin' on."

"Yes, but we have to keep things moving."

"Why," said the dealer, "I'm lettin' my stock run down and I'll be prepared for whatever happens. Do you think the cholera will get this far?"

"Now, John, cheer up. It may not be as bad as you fear. Say, tell me about hard wall plaster? What brand had I better use in my building?"

"I had a trade paper round here once that told about it and I wish I'd kept it."

"Maybe Tom, the other dealer, knows."

"Well, look out for him. Tom is all right in some things, but I'm afraid he is going to the bad."

The intending dealer went away rather dubious and sauntered down to Tom's yard.

"Come on in, Bill," shouted Tom as soon as he caught sight of the visitor. "Just thinking about you. I hope you are as happy as you look."

"Reasonably so."

"Now I just know you are going to build something. I see it in your face."

"Right you are, and I am going to use hard wall plaster on the interior if it is what I think it is."

"Now you are talking. I have been keeping posted on that subject and read all there is about it in my trade paper every month. Come on, sit down and we will talk it over. Here, have a fresh one." And the two sat down to talk about hard wall plaster. Now the question is this: Which dealer got the order for the plaster? Can you guess?

CANADIAN DEMAND FOR CRUSHERS.

U. S. Consul Gebhard Willrich, at Quebec, Canada, says:

"Just now there should be an excellent opportunity for the introduction here of American stone crushers as well as other machinery used in the construction of roads, because the government of this province under a late law aids rural municipalities with certain financial grants for road improvements."

"One local firm (address obtainable on application to Bureau of Manufactures) states that it recently sold 15 stone crushers and has orders for 10 more."

POTASH AND PERLMUTTER

Discuss the Cement Business and Decide that the Cloak and Suit Business is Good Enough For Them.

(With apologies to Montague Glass)

"Well, Mawruss," said Abe Potash one morning as he came down later than usual because of some disarrangement in the subway, "I hope we have more subways some day so maybe I can get a seat sometimes, y' understand. I don't mind being a straphanger, because already I got used to it, but when we get caught between stations and have to stay there for a half hour, that's another thing."

Having delivered himself of this long speech, which was said more as an excuse for being late than as a roast for the subway, he proceeded to divest himself of his coat and hat and made a rush for the morning mail, which, however, had already been gone over some time ago by his partner. As he turned to leave he cast a furtive glance at Morris Perlmutter to see how it was received, and not noticing anything except a vacant stare into space, he did not make any further explanation, deeming it unnecessary at this time.

As a matter of fact, his wife had been ailing and what with going for a doctor and other delays incident to the matter he had consumed a good two hours. It never struck him until some time afterwards that it was a lame excuse and that Morris must have had something on his mind or he would have noticed it.

He would have told the truth at first, but he disliked the idea of telling his partner that his wife was sick especially as it was caused by eating too much rinderbrust and kartoffel salad at a dinner the night before.

Later, however, when the two partners were in the show room straightening out their line after a customer had gone, Morris gave the first sign of what was on his mind. "Subways, is it?" said he, with some show of heat. "We wouldn't have no subways, maybe, if it wasn't for cement and maybe anyhow you would rather go back to the horse cars, ain't it?"

"Me," said Abe, "what a question, why should I be satisfied to be behind the times? Maybe, because I didn't get the autermobile habit yet, ain't it?" This last was a shot at Morris, who had only recently sold his automobile at a loss.

"Well, this cement business is all right and a good business, but nobody makes any money yet," said Morris, getting back to the subject of cement which was on his mind.

"What for a business is that?" said Abe. "Maybe its like Moe Heinstein what always sells below cost and gets rich yet doing it."

"No, that wouldn't be so bad, but when it costs, y' understand, 65 cents at the mill and that ain't no overhead charges, y' understand, and you sell it for 50 cents, what for a business is that?" rejoined Morris.

"Well, maybe it don't cost no 65 cents," said Abe, who seemingly was unable to grasp the situation at all. "Maybe there's some trick about it."

"Trick, is it?" ejaculated Morris. "It's no trick to lose money, any sucker can lose money, what nonsense."

"For why you are so interested, you got a cloak and suit business which is not such a big business y' understand, but we make it a little money, maybe, eh! what?" This last with a broad grin and a very obvious wink on the part of Abe.

"Well, I tell you," said Morris, as if to relieve himself of a burden. "Two days ago, Hyme Aarons, by the Globe Suit Co., of Kansas City, sends it me a letter by a loafer by the name Montmorences Alger something Smith and he tries to sell me some stocks in a new cement company what is going to make millions yet. He said Hyme owned ten shares, yet, and he would let me in the cellar, which was better as the ground floor and I should make it a whole lot of money. But when I made inquiries yet I found out everybody loses money. Everybody says business is good and more cement is used as ever before, but manufacturers y' understand, would rather lose money as make it, because they're afraid of Uncle Sam or Jim Sherman or somebody. Me, I don't understand such a business. We might have to sell a lot of last year's stickers at cost maybe, which ain't making money y' understand, but we make it up, and we ain't got no combination either."

"A business what everybody loses money is no business," said Abe. "Why don't they get out when they see they are losing money?"

"Get out," yelled Morris, "get out, they can't get in fast enough, every day they organize a new company. Once in awhile one of them busts, but that don't make no difference. Cement stocks is like gold mines, only in gold mines somebody makes money, maybe, even if it ain't the stockholders, but in the cement business, everybody loses."

"Well, what are you going to do about it?" asked Abe quietly.

"Do about it," said Morris excitedly, "do about it, I am going to tell that lowlife bum when he comes back for my answer he can go to h—— even if we lose Hyme Aaron's account, that's what I'm going to do about it."

ECONOMIES IN FUTURE HOUSE CONSTRUCTION.

The following address was delivered before the Architectural, Building, Contracting and Engineering Conference in the New Grand Central Palace, Lexington avenue, New York City, recently. It is an interesting treatise on "Economies in House Construction" and indicates that Hilder Shaw, contracting engineer, 11 Broadway, New York, is on the job:

It is with diffidence that any seer should speak upon such a subject. The incredible evolution from visualities unto practicalities, as we have witnessed in connection with wireless telegraphy, motor construction, halo observations and other wonders, must be my justification for delivering a brief address, propounded upon speculations of an idealistic character.

Comprehensive nomenclature has defined the evolutions of constructiveness as the "Stone Age," the "Bronze Age," the "Pottery Age," the "Iron Age," the "Steel Age" and the present "Concrete Age."

Marching alongside has been the accompanying "Timber Age;" but now denuded forests weaken her footsteps; the fire underwriters harass her further progress, and future ages will view timber in the minor roles of tool-shafts and gangplanks.

Pressed steel will displace timber in windows, doors and other details of construction, whilst compositions will diesplace floorings and trim.

Architects and engineers are continually striving to overcome the rising costs of materials and labor; for necessity compels them to careful consideration of all innovations. The engineer particularly aims for strength and durability, the architect for attractiveness; cojointly, they are creating a new world of beauty and improvement.

Inventiveness to produce economics in building operations is dependent upon the acceptivity and perspicacity of architects and engineers. These professions have risen to all requirements; and the achievements we see around us, both in country and town, will live for the enjoyment and edification of the coming race.

Economies in future house construction are engenerative in various classifications:

Wages, weight, competency, values and innovations.

Wages—Within the last 20 years we have seen the growth of trades unionism rising from an ethical argument into a controlling and uncontrollable force. The time must come when contractors will receive as well as be compelled to give equitable returns for specie.

Weight—Weight involves expense in every direction. Selling values are values, haulage, freightage and handlings are based upon our scales; therefore relief must be given by reinforcements in all productions, whether in sewer pipes, steps, slabs, beams, walls or components. Perishable timbers will be replaced by reinforced concrete members whose specific gravity will be counterbalanced by their minor proportions.

Competency—A very present injury to competent contractors is caused by the marauding bands of ignorant workmen. Instigated by unscrupulous architects and engineers, who seek to cut prices so that they may propitiate their wavering clients, many a foreman, advised of tendered prices, has been induced to launch his frail bark upon the uncharted waters of mastership.

The remedy for this procedure lies in legal enforcements necessitating a Bill of Quantities with the Plans and Specifications. Successful bidders will not then sit paralyzed, wondering what they have overlooked.

Values—Material prices will have to be approved by governmental commissioners, a similar course to that adopted towards railway freight charges.

Economy in building waits upon the removal of the foregoing disturbing factors, as well as upon innovations in construction.

The immovable laws of the Medes and Persians are paralleled by the antiquated building bylaws of many communities. It has taken many years to convince their authors that re-enforced concrete deserved some consideration. Even now a flimsy balloon timber firetrap is admitted in preference to a thin re-enforced concrete wall.

The crying evil of the present town life is the cramped quarters, sanctioned by the building bylaws, in which citizens have to live.

About sixty years ago in England money was raised by taking window lights. To dodge this iniquitous tax people bricked up their windows, the result being that their health and eyesight were seriously affected. That lesson has never been forgotten, and our present bylaw that requires the window area to be one-tenth of the floor area is a result.

I might here mention that the statesman who devised that window tax became blind. The public unfeelingly commented, "He taxed God's light and the Lord has withdrawn the light of the sun from him."

One of the most ancient races of prehistoric man has been classified as the "Kitchen Midden" race, the title being derived from their habits and customs (which wererespectively nonexistent and nasty).

When Macauley's New Zealander excavates amidst the iron oxide dust of our present New York, he will come across indications proving there lived a race who got their food—not by the paleolithic flint, not by the neolithic flint, not by the sling, not by the bow and arrow—but by the tin can opener.

This race will be classified as the Delicatessen Race, and from measurements he will conclude that the kitchen was three feet by six feet in area, which area he will know from personal knowledge prohibited any exposition of housewifely duties, afforded no hospitality to the stork, and accounted for the daily flights of the female to the fastnesses of the bargain counter.

The horoscope of building innovations must be plotted upon the present world. Concrete has developed into re-enforced concrete; and the nebula of the Vitrous Age is within our vision.

The coming race will eliminate the use of steel in re-enforcements, electrolysis will dissolve our skyscrapers within decades.

Regrets are unavailing and unnecessary. Rapid transit facilities will develop outlying suburbs, wherein the present hives of workers will be distributed.

The telephonic communications, now a necessity and a curse, will be replaced by personal wireless telephony. Our thumbprints will be sent to selected communicators; magnified into an electrotype, they will be the method of "tuning up" to our correspondents.

Building deteriorations (resulting from earth and traffic tremors), as well as disastrous fires will necessitate quake-proof structures.

These present and future conditions ordain the use of concrete in all its many adaptations as our future building material.

Wall construction will be of poured concrete, faced with artistic brick, iron and other entablatures. Plaster compounded with fusible minerals will enable the constructor to cover his structure with preparations which, when dried and ignited, will result in a vitrous glaze, surpassing in sheens the colors of the mirage.

May this direction of investigation be hastened by chemical research, supported by philanthropists.

Pipes and conduits will be impressed into re-enforcing duty, saving thereby space and appearance.

Wall papers will be displaced by tintings, sprayed on to the concrete walls by air brushes. Stencils and bas-reliefs will remove all monotony.

Roof construction will change greatly. The hideous forest of chimneys as seen in England are here replaced by a single flue; but even that flue will disappear when our contaminations, whether of dust, air or smoke, will be blown into the sewers, there to assist in the sewage disposal problem.

Smoke abatement will permit of the utilization of our roofs. Flattened into sleeping quarters or roof-gardens, they will be bordered by encaustic embellishments and surmounted by pergolas and minarets and cupolas, thereby developing into a new style of architecture that will embody the wonders of the East with the benefits of the West.

The Paragon plaster plant, Lime Ridge, Pa., was destroyed by fire on July 12. Loss estimated at $15,000.

The West Union Cement Company has been incorporated at West Union, Iowa, with a capital of $10,000.

The large concrete mixing plant of the McCall's Ferry Power Company, on the Susquehanna River, containing much valuable machinery, was destroyed on July 31 by fire of unknown origin. The building destroyed was frame, covered with corrugated iron. The loss is estimated at $20,000.

FOR THE RETAILER

The National Builders' Supply Association

Meets Annually.

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Official Organ, ROCK PRODUCTS

Don't Forget
Fifth Annual Outing
Ohio Builders' Supply Association,
Friday and Saturday,
August 25 and 26,
The Breakers,
Cedar Point, O.

OUTING OF OHIO ASSOCIATION.

The fifth annual outing of the Ohio Builders Supply Association will be held Friday and Saturday, August 25 and 26, at Cedar Point, Sandusky, Ohio. This annual affair has always been one of extreme enjoyment for those members in attendance, and Frank B. Jones, of Toledo, president of the association, says that this year there will be many pleasing surprises for the visitors. Every Ohio retailer should be on hand.

The outing and special meeting will be held at "The Breakers," Cedar Point's best hotel. Additional information will be furnished by the secretary of the association in regard to meetings, entertainment, etc.

Jesse Stone, at Potomac, Ill., is building a new salesroom and additional sheds.

H. A. Lensing, building supply dealer at Evansville, Ind., will soon build a new warehouse.

The Architects' and Engineers' Supply Company, of Kansas City, Mo., is contemplating removal to larger quarters on account of its growing business.

The Riesen & Wilke Company, dealers in building materials, Milwaukee, Wis., has been incorporated with a capital stock of $15,000 by Hubert Riesen, Barney Wilke and Frank Wittak.

Trost & McMahon, of Hoboken, N. J., has been incorporated with a capital stock of $50,000 to deal in sand, lime, brick and lumber products. The incorporators are H. Trost, J. P. McMahon and J. J. Fallon, all of Hoboken, N. J.

READY ROOFING.

While ready roofing has nothing in common with the products of rock, it is still a fact that every building material dealer, especially in the smaller towns and cities, carries this staple in stock, and it constitutes one of his most profitable and best lines. Ready roofing, coming from the factory in rolls, is easily handled, and the only expense for its maintenance is the room it occupies in the shed. The manufacture of this roofing has now reached a stage of such perfection that the dealer runs no risk of making a mistake in the selection of a brand if he ties to a well known and reliable manufacturer.

This style of roofing has become popular on account of its cheapness and the further fact that expert labor is not necessary in laying it. The novice can handle it satisfactorily. So the farmer especially is using it on his house and his barn and other outbuildings.

The popularity of ready roofing means no disparagement of shingles, slate, tile or tin, as these materials probably will find a sale till the crack of doom. It is only with reference to the dealer's interest in this staple that we speak of it.

You may know it, but whether you do or not, the manufacturer stands ready to meet you more than half way in the matter of pushing the sale of ready roofing. He will coöperate with you. He will supply you with literature enough to fill your office. He will send you cards enough to cover all the telegraph and telephone poles in town, and he will send you board signs to tack on the fences bordering all the roads that lead to your plant.

Now it is a clean stock to handle and the money invested in it does not lie tied up long in your shed. You are not making any money on the stock that lies idle in your shed or yard, you know. The only stock you are making money on is that in the wagon going out.

A good plan is to have the building you are in or one of the sheds in your yard roofed with this material for display purposes. No argument is so convincing to the customer as the sight of a material actually made use of by the dealer. He thinks that if the dealer has confidence enough in a material to use it himself it must be good enough for him.

Another thing, talk ready roofing to your customers. You can learn all the selling points from the literature sent out by the manufacturers, and it will pay you to inform yourself on these points.

LOUISVILLE RETAILERS.

Louisville, Ky., Aug. 15.—That the builders' supply trade of this city is in mighty fine condition at present and will probably even better itself as the fall season progresses is a self-evident fact when one considers that possibly the biggest building boom in the history of the Gateway City is now holding sway. More than six million dollars' worth of building activity has already been evidenced to date in the Building Inspector's office and one or two other jobs of impressive proportions are yet to be brought to light. A big quota of this work is already in course of construction and it seems that the boom is to blossom to its fullest extent immediately, for the sites for the structures yet to be arranged are being cleared up as rapidly as possible and by early fall everything will be going full blast.

Work has already been begun upon The Watterson Hotel, the Inter-Southern Life Insurance Building, a 10-story office structure at Center and Jefferson streets, and the Weissinger-Gaulbert apartment annex. Considering what these jobs mean, it is little wonder that builders' supplies are selling as they have seldom if ever sold before. The Watterson is to be a magnificent 11-story hostelry on Walnut street, near Fourth avenue, of the most approved type throughout, and costing about $800,000. The Inter-Southern Life Company's structure will be eighteen stories high, the tallest building in Louisville, when completed, with every detail of the twentieth century office building incorporated therein.

The Center and Jefferson streets office building is being erected by the Falls City Construction Company, and a similar sized annex to the Weissinger-Gaulbert, the first really metropolitan apartment house in Louisville, is being erected as rapidly as the work can be pushed.

Prospective is just as good as present activity in Louisville building circles. Inspector Robert J. Tilford says that he has inside and direct information from a prominent local architect regarding a 25-story office building to be erected in the downtown district as soon as plans can be drafted. The officials of the Lincoln Savings Bank are considering a 14-story annex to their present skyscraper at Fourth avenue and Market street. The Louisville Young Men's Christian Association has yet to commence construction work upon its new home at Third avenue and Broadway, which will cost about $350,000, and will be one of the finest of its kind in the South. And the new City Hospital, to cost $1,000,000 or more, is yet to replace the present antiquated edifice at Preston and Chestnut streets.

The Samuel F. Troxell Company reports that business is normal, with prospect of a decided gain in the near future. One of the big contracts which this firm is handling is that for roofing and concrete construction work about the big new freight house of the Louisville & Nashville Railroad Company at Ninth street and Broadway.

"We have always had a good steady general trade in Kosmos Portland cement all the year round, but during the past month or so the activity in this line has been unusually brisk," said R. C. Culley, of the Culley Cement Block Company, in Louisville.

William Addams, a prominent building supply man of Cythiana, Ky., recently acquired state-wide prominence by entering the political field as an aspirant to gubernatorial honors. Mr. Addams made a game fight for nomination for governor on the Democratic ticket, but was defeated by former Senator James B. McCreary.

The annual picnic and outing of the Louisville Builders' Exchange, to which numerous contractors and building supply men belong, will be held on Labor Day, in September, this year, according to the recent announcement of Secretary Jesse M. Vollmer.

NEW YORK RETAILERS.

New York, Aug. 16.—The local building material trade is rather slow at present, and the demand during the past month was quiet. The market is in the grip of the dull mid-summer season. However, dealers look forward for better conditions by September 1, when the demand for the fall business is expected to begin. There have been quite a number of building operations started recently, which a little later in the year will require large quantities of all kinds of building materials. Dealers are complaining of the difficulty they are experiencing in making collections.

William C. Morton of the Consolidated Rosendale Cement Company, speaking in reference to conditions in the local building material situation during the past month said: "The local building material market has progressed along uneventful lines during the past month and the demand continued quiet. The market is in the throes of the dull summer season. However, dealers look for improvement in trading during the next month when the fall activity is expected to begin. The demand for Rosendale cement is fairly good and prices are unchanged, 80 cents, in bulk at mill."

Uriah F. Washburn, of Washburn Brothers Company of Jersey City, N. J., stated: "There have been no interesting developments in the building material and brick trades during the past month and business conditions continued quiet. However, we look forward to a substantial increase in trading in the early fall months when contractors will need more materials to complete jobs before the cold weather sets in. The New York Brick Company that was recently organized is running smoothly and in my estimation will benefit both the manufacturer and consumer of brick. Hudson River brick is quoted from $5.62½ to $6.00 per M."

A representative of the United States Gypsum Company said that the demand for their products was very good during the past month. The fall business has begun to materialize and they are of the opinion that from now on conditions will improve as outside work on a large number of building operations has been completed and the men are now ready to tackle the interior work. Collections, however, continue a little backward.

The Globe Construction Company, of Newark, N. J., has been incorporated to do a general contracting and building business with a capital stock of $100,000. The incorporators are: H. H. Koehler, Newark, N. J.; P. A. Regad, Irvington, N. J., and J. O'Hagan, of Orange, N. J.

Newton A. K. Bugbee & Co., of Trenton, N. J., has been incorporated with a capital stock of $100,000 to carry on a general contracting, engineering and construction business. The incorporators are: N. A. Bugbee, H. W. Bradley and B. H. Bugbee, all of Trenton, N. J.

E. L. Phillips & Co., of Manhattan, has been incorporated to carry on a contracting and engineering business with a capital stock of $100,000. The incorporators are E. L. Phillips, W. M. Heim and H. R. Frost, all of New York City.

FIRST ANNUAL

Meeting of the New England Builders' Supply Association Held at Paragon Park, Nantasket Beach.

Pursuant to the call of Secretary Whitney, which was issued July 31, the first annual outing of the New England Builders' Supply Association was held at Paragon Park, Nantasket Beach. In his circular letter Mr. Whitney advised the members that according to the best astronomers all the "signs" pointed to important happenings on August 18, and it was the unanimous opinion of the sixty-five gentlemen (for it was a stag party) who were present on this auspicious occasion that the prediction was fulfilled.

In the first place the day was exceptionally fine, and as nearly all in making the rendezvous availed themselves of the steamboat trip down Boston Harbor, they not only were immensely entertained by the view en route, but also found the salt air a good appetizer for the dinner.

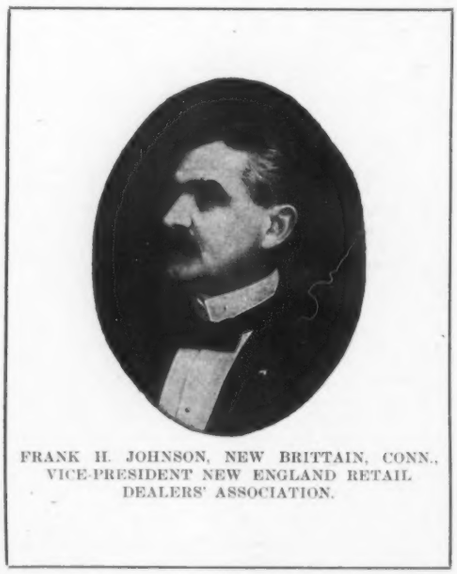
Each trip of the boats during the forenoon brought some of the dealers as part of their freight, who straightway hied themselves to Paragon Park, duly adorned with the association's red badge, which was a complimentary gift to it by three leading Worcester (Mass.) companies—Smith-Green Co., F. E. Powers Co. and B. F. Marsh Co.

After a time spent in greetings and social intercourse, the members were led to the tables in the large dining hall at Palm Garden to partake of the dinner which Secretary Whitney had in advance predicted would be thoroughly satisfactory. In evidence of this we furnish the menu:

Chilled Canteloupe
Fish Chowder
Olives Radishes
Educator Crackers
Fried Chicken Lobster Tarter Sauce
Fried Duxbury Clams
Pickles Sliced Cucumbers
Saratoga Chips
Broiled Spring Chicken on Toast
String Beans Delmonico Potatoes
Lettuce and Tomato Salad, French Dressing
Educator Saltiny
Vanilla and Strawberry Ice Cream
Assorted Cake
Rolls Roquefort Cheese Toasted Crackers
Coffee

After the dinner had been thoroughly discussed and cigars lighted, President Kelly rapped the assemblage to order and made a neat address. He heartily congratulated the dealers who were present on the success which had attended the plan for an outing of this nature which furnished a pleasant occasion for becoming better acquainted, of comparing notes for subjects of mutual interest and of taking steps to largely increase the membership of the association. He felt that the objects and advantages of the association were so thoroughly known to those present that there was but little need of dwelling further upon them. He took occasion, however, to assure the manufacturers and their representatives that they need not imagine that the association contemplated making any move that in any way could be construed to be antagonistic to their interests. On the contrary, one of its purposes was to bring about a more satisfactory understanding and to eliminate friction. There should be a spirit of fair play in which, while dealers may properly insist upon their rights, they must in turn respect the interests of manufacturers and be careful to live up to their contracts. Mr. Kelly, in introducing Secretary Whitney, gave him high praise for his interest in the association and thanked him for the efficient work he had performed in the formation of it.

Secretary Whitney modestly disclaimed being entitled to receive such high meed of praise for his labors, and called attention to the occasion for further work in the direction of increasing the membership. As there are over one thousand concerns in New England who are classed as dealers in masons' materials, in order to get a st'" larger representation it will be necessary for each member to actively aid in the movement. He felt sanguine that with each meeting an increase in the interest and in the membership would be witnessed.



FRANK H. JOHNSON, NEW BRITTAIN, CONN., VICE-PRESIDENT NEW ENGLAND RETAIL DEALERS' ASSOCIATION.

President Kelly then stated that it would be without doubt the pleasure of the meeting to hear from some of the manufacturers, and seeing they had been favored with the presence of Thos. M. Magiff, of the Knickerbocker Portland Cement Company, of New York, he invited that gentleman to address the members.

Traffic Manager Magiff explained that as he had no idea he was to be called upon, would be obliged to make an impromptu address, and in offering a few words, said he felt it was doing him an honor to be asked for an expression from a manufacturer's standpoint, and wished to assure the members of the association that he was in sympathy with their movement and hoped it would develop into a strong organization. "The association movement is in the air," said Mr. Magiff, "and it's advantages are recognized by almost every line of trade. It is a good thing and should be pushed along. If such associations are properly conducted they can and should be instrumental in benefiting both the dealer and the manufacturer. The moral influence which a large association can exert, the friendly spirit which each interest manifests toward the other, cannot fail to bring about needed reforms in methods and practices, and also develop a spirit of ready co-operation and good will."

Mr. Kelly proceeded to invite other manufacturers or any of the members who felt inclined to address the meeting to avail themselves of this opportunity. As none of them, however, responded, he observed that doubtless as the occasion was understood to be, primarily, one of a social nature, and that men who gave such thorough attention to their business were entitled to a little recreation, he ought now dissolve the meeting in order that they might avail themselves of the opportunities for it which such an attractive locality afforded.

For an hour or more most of the members gathered on the veranda of the building and the fun soon became fast and furious. As during the dinner it was discovered that some of the men were tunefully inclined, the singing of popular airs continued to be favored. Toward the close of the afternoon some of the out-of-town members began to withdraw, but a contingent of about a score decided upon a trip by carriages to Hotel Pemberton, which is situated about five miles by road nearer Boston and prolong the festivities there by partaking in the evening of another repast.

These choice and congenial spirits in due time ensconced themselves around the festive board, under the leadership of that prince of good fellows, George Parry, who acted as speaker, singer and toastmaster. Contrary to the usual custom of waiting until the repast is over before attention is given to other phases of festivity, on that occasion this extra dinner was interrupted ever and anon by extemporaneous remarks, sometimes in response to Mr. Parry's call and at others volunteered. What with the music of the orchestra at intervals, singing, and short addresses—one of which was made by E. S. Larned, of Boston, favoring the objects of the association—there were plenty of "doin's." The elements joined in the affair in the shape of a lively gale with rain, and after it cleared up, the company took the boat for the Hub.



PANORAMIC VIEW OF PARAGON PARK.



NANTASKET BEACH, NANTASKET, MASS.

NOTES OF THE MEETING.

Mr. Kelly was overheard to remark that one result from these gatherings should be a disposition to also become members of the National Association.

In the scramble of the guests to save their hats which reposed on chairs while at the supplemen-

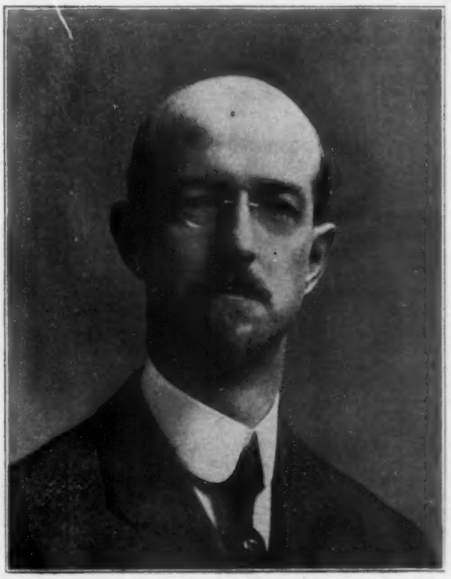
tary dinner, one of the salesmen of the Knickerbocker company found when he was about to leave that he was minus his headgear, but while on the wharf awaiting the boat it was "discovered" by the waiters.

Jimmie Bernard was heard to exclaim as he arrived on the scene of "operations" in a jubilant way: "Here again!" He explained that the initiated would understand it.

Tom Magiff added to his laurels as a jolly good fellow. He was not only in good humor himself but the occasion of it with the rest of the company.

THE ATTENDANCE.

Fred Binford, Pawtucket, R. I.
S. F. Hammett, Taunton, Mass.
Samuel C. Cottrell, Pawtucket, R. I.
L. Beals, E. A. Wilson Co., Lowell, Mass.
Harry B. Musk, Geo. L. Gage Co., Lawrence, Mass.
Frank H. Kingsley, Borden & Remington Co., Fall River, Mass.
Charles M. Kelly, President James C. Goff Co., Providence, R. I.
Edwin D. Allen, Treasurer Manchester & Hudson Co., Providence, R. I.
Frank Howard, Howard & Morrow, Pittsfield, Mass.
Arthur M. Howard, Howard & Morrow, Pittsfield, Mass.
John W. Wordworth, Manchester, N. H.
Geo. E. Shaw, Pawtucket, R. I.
E. A. Wilson, E. A. Wilson & Co., Lowell, Mass.
R. H. Whitney, B. F. Marsh & Co., Worcester, Mass.
Thomas H. Early, Thomas H. Early & Co., Providence, R. I.
F. E. Cleary, David W. Lewis Co., Boston.
R. C. Cleveland, President the Smith-Green Co., Worcester, Mass.
C. H. Clark, The Smith-Green Co., Worcester, Mass.
I. Friedman, I. Friedman & Co., East Cambridge, Mass.
Howard Prequitt.
F. E. Powers Co., Worcester, Mass.
MANUFACTURERS AND WHOLESALERS.
Thomas M. Magiff, sales and traffic manager Knickerbocker Portland Cement Co. of New York.
Edward B. Page and J. W. Stinson, Boston office Knickbocker Portland Cement Co.
J. L. Bernard, New England manager Edison Portland Cement Co., New Village, N. J.
H. S. Blanchard, Edison Portland Cement Co., New Village, N. J.
Thomas S. Young, Vulcanite Portland Cement Co.
H. L. Pratt, Boston office Alpha Portland Cement Co., Easton, Pa.
George H. Drake, Boston office Atlas Portland Cement Co., New York.
W. C. Carr, Rock Plaster Manufacturing Co., New York.
Cecil Hooke, Wortherspoon Plaster Mills, Inc., New York.
W. E. Healey, Rockland-Rockport Lime Co., Boston.
A. V. A. Felten, representing Caufield Lime Co., Connecticut Lime Co., Massachusetts Lime Co., and West Stockbridge Lime Co.
Frank W. Clark, Portland Stoneware Co., Boston.
S. W. Hersey, Portland Stoneware Co., Portland, Me.
C. W. Taylor, Eastern Clay Goods Co., Boston.
George A. Parry, president Parry Brick Co., Boston.
F. W. Pence, Presbrey Fire Brick Works, Taunton, Mass.
Fred E. Goff, Presbrey Fire Brick Works, Taunton, Mass.



E. S. LARNED, UNITED BUILDING MATERIAL COMPANY, BOSTON, MASS.

R. G. Inge, Boston office American Sewer Pipe Co.
C. T. Jackson, Harbison-Walker Refractory Co., Pittsburgh, Pa.
E. A. McKelvy, district manager General Refractory Co., Pittsburgh, Pa.
John D. Aspin, Saylor's Cement Co.
Charles H. Cox, William G. Hartrauft Cement Co., Philadelphia, Pa.
James G. Lincoln, William S. Simpson and W. H. Sprague, Waldo Bros., Boston.
M. F. Ryan and Walter S. Ray, secretary Windsor Cement Co., Boston.
William C. Norcross, F. E. Howe, Frederick W. Morison and W. E. Healey, W. C. Norcross Co., Boston.
E. Sheppard Roach, Frank C. Willebrand and Benjamin K. Graham, Charles Warner Co., Boston.
E. S. Larned, United Building Material Co., Boston.



R. C. CLEVELAND PRESIDENT SMITH-GREENE COMPANY.

William G. Starrett, firm of Starrett-Fields Co., Boston.
E. S. Fields, firm of Starrett-Fields Co., Boston.
E. B. Wolfrom, Dealers' Record, Chicago.
L. C. Breed, ROCK PRODUCTS, Chicago.

MAKER AND DEALER.

In the firm of Maker & Dealer the partnership is real and intimate. It is as real as sunshine.

Mr. Maker attends to the producing plant. Mr. Dealer sells.

Both Mr. Maker and Mr. Dealer are so situated by the demands of the business that they seldom meet face to face except at annual association meetings.

When you hear one partner of a concern talk about the other member of the firm who happens to be absent you want to hear him say something complimentary, do you not?

If one member of a firm raps with his hammer the other member you say at once, "Something wrong there—out of tune."

Mr. Dealer, your partner at the factory end is working not only for his advantage but also for yours, as any partner ought to. He knows if you make money he will too. He is concerned always about your selling conditions, and about all matters affecting your trade. He wants you to sell all the product of the factory that you can in your territory.

Be loyal to your partner, Mr. Dealer.

Mr. Maker, you too must know that your partner, Mr. Dealer, is working at the selling end as best he can. You are advising him all the time how to sell more of the product of your plant. Whenever you get an inquiry from a consumer in the town where your partner is located you immediately send it to him and him alone. You know it is to your mutual advantage to make a price that will give a profit to you both—a price that will keep the goods moving.

Mr. Maker, be loyal to your partner.

The principle of the interdependence of the manufacturer and the dealer was born when the first man made something in quantity and sold his product to others to be resold to consumers.

Any condition that might disturb this simple harmony between partners ought not to be allowed to rankle.

Stick together, Messrs. Maker and Dealer, and success to you.

The Simpson-Corbin Company, of Jersey City, N. J., has been incorporated with a capital stock of $50,000 for building, construction and repairing of railroads, water works, tunnels, bridges, viaducts, etc. The incorporators are C. R. Simpson, Huntington, Pa.; H. K. Corbin, Elizabeth, and D. A. Newton, Jersey City, N. J.

DETROIT RETAILERS.

Detroit, Mich., August 18.—Building operations in this city this year have been on a satisfactory scale, although perhaps a shade less active than in 1910. Firms handling builders' supplies here are doing a large business and are imbued with the feeling that marked activity in building circles will obtain throughout the coming fall. The men engaged in handling builders' supplies are active, energetic and hard workers and without exception are hustlers "who do things."

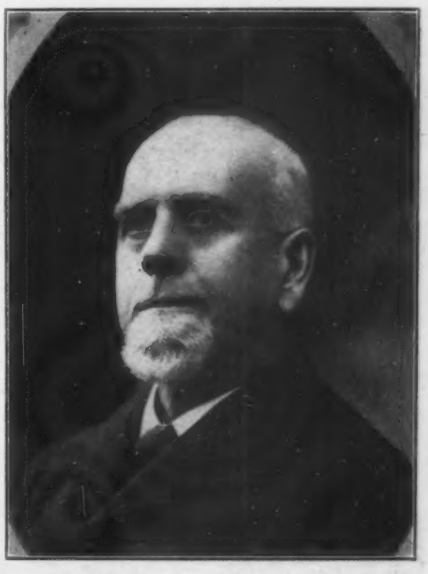
The C. H. Little Company is one of the oldest and largest firms in Detroit handling builders' supplies. It was established 54 years ago. The main offices are on the third floor of the Penobscot Building. The officers of the company are: Charles H. Little, president; Charles Heiden, vice-president; Porter A. Tucker, treasurer; T. M. Little, secretary, and C. N. Ray, general manager.

The company operates seven large yards so distributed over the city as to reduce hauls to a minimum of one mile. These yards are located on the principal railroads, enabling the company to get the benefit of the lowest rate of switching and quickest delivery. The arrangement of these yards for handling builders' supplies economically and promptly is admirable. The combined storage capacity of the warehouses in the yards is estimated at 100,000 barrels of cement, leaving adequate space for hydrate and stucco. Up to date barns in these yards stable 135 head of horses and an average of over 100 teams are employed in hauling material to jobs in all parts of Detroit.

The plaster mill of this company is located in its Atwater street yard, which has a daily output of 150 tons of plaster; here is manufactured the well known "Little's Hard Wall Plaster," "Little's Fiber Plaster," "Little's White Trowel Finish," "Little's White and Gray Wainscot Finish," "Little's Flat Sand Finish" and "Little's Artcote Finish" for exteriors. It handles lime in bulk and hydrate; the Peninsular, Lehigh and Wabash Portland cements and the Blanc Stainless and Medusa White Portland cements; sewer pipe and a complete line of builders' supplies.

The C. H. Little Company owns four steam sand suckers and will put in service next spring the largest steel sand dredge that has ever been built on the lakes. It owns four sand pits, one in Shelby, one in Utica and two in Rochester, N. Y. It is now putting in the Shelby pit a new derrick of the McMyler type. The output of these sand pits is half a million cubic yards of sand annually. Every pit is equipped with the latest type of the Williams derrick.

The C. H. Little Company moved its offices two years ago to the Penobscot Building, occupying one-half of the third floor, opposite the Builders' Exchange headquarters. They are among the most elegantly appointed and best arranged quarters for transacting an enormous business of any builders' supply firm in the country.



C. H. LITTLE, DETROIT, MICH.

H. Houghten founded the builders' supply firm of H. Houghten & Sons in 1875 and was incorporated

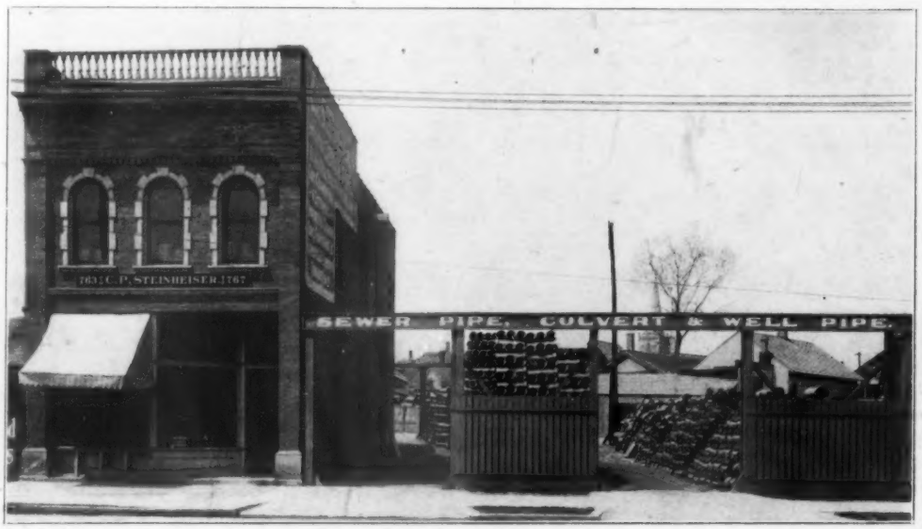
in 1910. Its main offices are in the Hammond Building, Detroit, on the eighth floor. Its officers are: B. F. Ewing, president, treasurer and general manager, and C. L. Houghten, vice-president. They operate six yards, five of them having Michigan Central switch tracks and one has Wabash and Pere Marquette switch tracks, giving them unequaled railroad transportation facilities for their extensive business operations. The storage capacity of the various warehouses in their wards is estimated at 15,000 barrels of cement, with an additional storage capacity of 1,500 barrels of bulk lime and 500 tons of hydrate of lime. They handle Wolverine, Wabash, Universal, Medusa, Huron, Wyandotte and Atlas Portland cements; lime of the Kelley Island Lime & Transport Company and the Woodville Lime & Cement Company; sewer pipe of the American Sewer Pipe Company, Buckeye & Summit Sewer Pipe Company, Granite Clay Company and the Chicago Fire Brick Company; the output of their hard wall plaster is 200 tons per day, manufactured in their plaster mills at yard No. 1, foot of Dubois street, and yard No. 2, foot of Twenty-third street. They handle 450,000 barrels of sand and 540,000 barrels of gravel annually, with a large and complete line of builders' supplies.

One hundred and five head of horses are stabled in barns at four of their yards, and fifty-five teams are used daily for hauling building material to jobs to various parts of the city. This firm has done for years a very large and sucessful business, which is constantly increasing.

J. Calvert founded the firm of J. Calvert's Sons in 1876, jobbers and retail dealers in coal. They have their office in the McGraw Building, 145 Griswold street. They operate four yards, which are located on the Michigan Central, the Lake Shore & Michigan Southern and Belt Line railroads, giving them splendid transportation facilities. They commenced handling builders' supplies five years ago and do a very large and sucessful business. They own forty-four head of horses, which are stabled in barns in their various yards, and own twenty-two teams used in hauling their building material. The storage capacity of their warehouses in these wards is about 5,000 barrels of cement. They handle Atlas, Medusa, Universal and Huron Portland cements; lime in bulk and hydrate, with a complete line of builders' supplies with the exception of plaster.

The Bartlett Supply Company is one of the large and successful firms in Detroit which handle builders' supplies. It was established three years age, with main office in the Hammond Building on the fourth floor. J. E. Bartlett is president and A. R. Rutledge is manager of the company. It operates two yards, one at Greenwood avenue, with switch tracks running into the yard from the Michigan Central, Lake Shore and Grand Trunk railroads, and the other at Highland Park with switch tracks running into it from the Michigan Central and Grand Trunk roads. Both these yards occupy about three acres of ground. The storage capacity of the warehouse in both yards combined is close to 10,000 barrels of cement. The company owns fifty head of horses and twenty-five teams, and in busy times often hires as many more to expedite prompt delivery. It handles Wabash and the various Pennsylvania Portland cements; lime in bulk and hydrate from the Woodville Lime & Cement Company and the Ohio & Western Lime Company; sewer pipe of the American Sewer Pipe Company, Evans Clay Manufacturing Company; sand and gravel; crushed rock; American Gypsum Company's compound and a full and complete line of builders' supplies. It manufacturs its own plaster, the plaster mill being located at the Greenwood avenue yard. The daily output of "Bartlett's Hard Wall Plaster" is sixty tons. It is popular and has a large sale.

The H. H. Dickinson Company, one of the progressive and growing firms handling builders' supplies in Detroit, was established in 1885. Its main offices



OFFICE AND YARD OF C. P. STEINHEISER AT DETROIT, MICH.

are located at 422 Grand River street and its yards at the corner of Fourteenth and Kirby streets. Switch tracks run into these yards from the Grand Trunk, Lake Shore and Michigan Central roads. They provide these yards with splendid railroad facilities. The storage capacity of the present warehouse is 3,500 barrels of cement. The company owns twenty-two head of horses and eleven teams. During busy times it hires as many more to insure prompt delivery. It handles Universal, Peerless, Huron and Wyandotte Portland cements; the product of the Toledo Pulp Plaster Company; lime in bulk from Delaware, O., and hydrate from the Woodville Lime & Cement Company; sewer pipe from the Evans Clay Manufacturing Company; sand, gravel, crushed rock and common brick for building. The company is now erecting a one-story office building of concrete blocks at their yards, which will be completed in one month. It has added lately over 100 per cent to its yard area, which now covers fully three acres, and will erect a warehouse in the spring with a storage capacity of 10,000 barels of cement, which will supplant the present one in these yards.

The Fairview Coal & Supply Company opened its yard at Kerchival street and Hart avenue four years ago. Its officers are: W. E. Currie, president; T. E. Currie, treasurer; George H. Currie, vice-president, and H. S. Thompson secretary and general manager. The superintendent of the yard is E. M. Phipps. Three switch tracks run into the yard from the Michigan Central and Terminal railroads, east. The combined length of these switch tracks is 1,000 feet. Three broad driveways run through the yard in such manner as to economize handling material and facilitate prompt delivery. The two-story warehouse in the yard has a storage capacity of 5,000 barrels of cement. Two up to date barns in the yard stable 28 head of horses and 12 teams and two singles are used hauling material to jobs. The company handles Huron and Wyandotte Portland cement; American Gypsum Company's plaster; Sibley Lime Company's lime in bulk, of Port Clinton, O., and Woodville Lime & Cement Company's hydrate; sewer pipe of the American Sewer Pipe Company, of Akron, O.; sand, gravel, crushed rock, common and pressed brick and a full line of builders' supplies. The company handles a large quantity of coal.

The Michigan Builders' Supply Company, J. E. Boomer, proprietor, was established in 1904. Its yard is at Forest avenue and the Grand Trunk Railway. The yard covers three acres of ground, has two switch tracks running into it, 800 feet long, from the Grand Trunk Railroad. It has four driveways and it is claimed is among the best laid out yards in Detroit. The brick barn in the yard stables 40 head of horses. Its construction is fireproof. The storage capacity of its warehouse is estimated at 15,000 barrels of cement. The company owns 17 double and five single teams. It handles Huron, Upiversal, Wyandotte and Wabash Portland cement; American Gypsum Company's plaster; Big "B" lime of the Ohio & Western Lime Company, and also hydrate, of which the Woodville Lime & Cement Company furnish part of the supply needed; sewer pipe of the Buckeye and American Sewer Pipe companies, of Akron, O., and the Chicago Fire Brick Company.

The company owns and operates a sand pit at Rochester, Mich., equipped with a centrifugal pump, screen for screening sand out of the bank and a locomotive crane. The sand pit has a mile of switch track from the Grank Trunk road running into it, and it is claimed is among the best equipped sand pits in the country. The average daily output of this pit is 400 cubic yards of sand. The company's yard on Avery avenue and the Grand Trunk Railway is used for storing sand and gravel. The company is about to open another yard on Canriff road and the Grand Trunk Railway, which will have 1,200 feet of railroad front. This will be stocked with a full line of builders' supplies by next March. It will be equipped with locomotive cranes, belt conveyors and mortar making machines. R. E. Boomer is the general manager. The business of the Michigan Builders' Supply Company developed out of J. E. Boomer's contracting business, in which he has been prominent in Detroit for over a quarter of a century.

C. P. Steinheiser established his business twenty years ago at his present location, 763-767 Gratiot avenue. Here in his early career he manufactured cement sewer pipe. In this yard he handles sewer pipe, gravel and cement. The storage capacity of his warehouse in this yard is 500 barrels of cement. At his Hart avenue and East Terminal Railway yard he carries a large and complete line of builders' supplies. A switch track 300 feet in length runs alongside of yard from the Michigan Central Railroad and three broad driveways through the yard form an admirable arrangement for handling building material economically and insuring prompt delivery. The storage capacity of the warehouse in this yard is 1,500 barrels of cement. The barn here stables seven head of horses and three double and one single team are used for hauling builders' supplies to the jobs in various parts of the city. He handles Wabash and Aetna Portland cement and Speed's natural cement; H. Houghten & Son's and C. H. Little Company's plasters; the Woodville Lime & Cement Company's hydrate exclusively; sewer pipe, sand, gravel and a full line of builders' supplies, which he has only commenced carrying this year. He reports business good, though not quite as active as last year.

The McGraw Plaster Company, located at Livernois and Toledo avenues, was incorporated last year. Its president and general manager is W. F. McGraw and its secretary and treasurer C. H. Amrhein. The company manufactures hard wall



BARTLETT SUPPLY COMPANY'S GREENWOOD AVENUE YARD, DETROIT, MICH.

plaster and is a wholesale and retail dealer in builders' supplies. The plaster mill is equipped with an up to date plaster machine, the Braughton mixer and one of C. A. Bartlett & Snow Company's sand dryers, conveyors and revolving sand screen. Its output is 40 tons of plaster a day. The company also operates a concrete block plant with an output of 300 blocks a day. The yard has excellent rail-



MAIN OFFICE VREDENBURGH LUMBER COMPANY, SPRINGFIELD, ILL.

road facilities furnished by a switch track from the Michigan Central road. The company handles Universal, Wabash, Huron and Wyandotte Portland cements; Woodville Lime & Cement Company's hydrate of lime and the Church Quarry Company and Sibley Lime Company's lime in bulk. It also sells largely the National Mortar & Supply Company's hydrate of Gibsonburg, O.; sand, gravel, crushed rock, etc.

A fire last July destroyed a small part of its plaster mill, which interfered somewhat for a few weeks with supplying the demand for its hard wall plaster, but the mill is now again in full operation. By the first of next December the company will have completed a new up-to-date plaster mill with a capacity of 100 tons a day, and then will tear down the old mill. A branch yard will be opened on the east side in the course of six weeks, which will be stocked with a full line of builders' material.

The Schweikart Plaster Works, rear 1930 Jefferson street, were established eight years ago. The plaster mill is up to date. It is equipped with the Standard & Machinery Company's mixer, one of their revolving screens, hair pickers and other auxiliary machinery. Its daily output is 35 tons of plaster. Carl Schweikart, proprietor of the plaster works, is securing a location on Hart avenue and the Terminal Railway to get the necessary railroad facilities he has stood in need of for some time. On this new site he will build an up-to-date plaster mill with a capacity of manufacturing 50 tons of plaster a day. He will also erect a warehouse, barns and office building and handle in this new yard a full line of builders' supplies. He expects to open this yard by the first of next year.

SPRINGFIELD RETAILERS.

Springfield, Ill., August 19.—H. C. Irwin, 818 East Washington street, is a busy retailer whose patronage and the field are co-extensive. His location upon one of the most prominent streets in



SOUTH SIDE YARD OF VREDENBURGH LUMBER COMPANY, SPRINGFIELD, ILL.

Springfield is of advertising value and the sight of a stream of customers is of psychological importance to people who intend to buy building materials. Mr. Irwin handles leading brands in each line. He does a large business in Lehigh Portland and Marquette cements, St. Genevieve and Marblehead lime, Fort Dodge plaster, and sand and gravel from the Virginia Timber Company, of Springfield. Among some of the large building contracts for which he has furnished material are the Pierik building, the new Christian church, Sixth and Cook streets; the R. F. Herndon building and the German school building at Fifteenth street and Lawrence avenue.

The Peter Vredenburgh Lumber Company is not only the largest concern in Springfield, but the oldest. Ever since the pioneer residents of Springfield can remember the name Vredenburgh has been associated with building materials. It has its own planing mill and is able to equip a house complete. The main yard is at Third and Jefferson streets, while the two others purchased from the Terry Lumber Company are at Third and Laurel streets and on East Washington street. One of the company's leaders is Chicago "A A" cement.

MEMPHIS RETAILERS.

Memphis, Tenn., August 12.—Trade is very good with the builders for August. The heavy rains of the month, much needed in farming districts, did but little to retard city work. The D. Canale & Co. warehouse, Lee building on Madison, the Oliver Plow Company, White-Wilson Grocery Company and W. C. Early & Co.'s warehouses and concrete buildings are receiving attention.

Work on the Union Station is moving along in such a way that it promises to be ready for use by the time of the fall festival.

The Cubbins Lime & Cement Company furnished the lime and much of the cement used on the Lotus Building, now being finished on Jefferson street.

Charles E. Brower & Co. are operating at Mem-



H. C. IRWIN, PROMINENT RETAILER OF SPRINGFIELD, ILL.

phis on iron and steel products for reinforced concrete buildings.

Another big hotel is being planned in Memphis. The Mississippi Realty Company, R. L. Jones, secretary, is pushing the matter. If constructed at all it will be at the northwest corner of Main and Calhoun streets.

City Clerk Ennis Douglass is taking bids on the street improvement bonds up to August 22, which are for street work. The designated sums are $300,000 and $661,000.

Michael Larkin, well-known street contractor, and concrete operator, was struck by a street car on Vance avenue Friday and narrowly escaped death.

WEST COAST RETAILERS.

San Francisco, August 14.—The retail business continues fairly active in San Francisco and Oakland, though some dealers report rather less inquiry during the last week or two. The general situation is encouraging, as the July record of building in Oakland shows a substantial increase over the previous month, and is about double the record of July, 1910, while in San Francisco the permits issued last month amounted to $2,134,479, compared with $1,954,501 for June. Building is hardly as active as it was last summer, however, and a good many of the smaller contracting firms are dissatisfied with present conditions. In Los Angeles building operations fell off about 30 per cent in July. Ordinary building work is keeping up well through the country, and the retail material dealers are getting about a normal amount of business, but there is some delay in the letting of contracts for large construction projects.

At a recent meeting of the Masons' & Builders' Association of San Francisco the following officers were elected for the ensuing year: E. J.



OFFICE OF H. C. IRWIN, SPRINGFIELD, ILL.

Brandon, president; Walter Reed, first vice president; E. S. Rainey, second vice-president; Thomas W. Butcher, treasurer.

BIRMINGHAM RETAILERS.

Birmingham, August 18.—Considering local conditions the building material business during the past month has been very good. At the present there are not big building operations contemplated on account of the excitement of the local option election, but there are a goodly number of homes and small structures in the course of erection and it is on these minor activities that the dealers are depending for the most part.

The work on the American Trust, the "Birmingham Ledger," the Y. M. C. A. and the Drennen buildings is rapidly advancing, and within the course of a few months these structures will grace the already cosmopolitan throughfares of Birmingham. The Tennessee Coal & Iron Company is also engaged in the tremendous task of erecting 31 houses for their laboring men in Corey, a town which could not be recognized if visited by a man who had not seen it since last year.

The members of the Builders' and Traders' Exchange held a most enjoyable outing and barbecue at Edgewood on Saturday, August 11. Although Jupiter Pluvius tried his best to spoil the occasion by a perfect downpour, the sunny disposition of the participants aided by the gastronomical attractions of the day (barbecue, ice cream, etc.) made the event one of mutual enjoyment.

The Fulenwider Building Material Company reports good business for the month. Mr. Robert Fulenwider states that the coming local option election has hurt the building material trade considerably, but that as soon as the excitement is over business conditions will return to the normal state.

The city commissioners of Birmingham have received from H. B. Wheelock, a well-known local architect, the plans of the city jail, which is to be erected soon. The structure is to be three stories in height and entirely of concrete, the commissioners, after careful investigation, having decided that this was the best material obtainable for a building of this kind. The Bastile is to be built



WEST SIDE YARD VREDENBURGH LUMBER COMPANY, SPRINGFIELD, ILL.

along the most modern lines, and nothing will be spared from making it one of the best constructed prisons in the South.

The Baldwin Building Material Company has enjoyed a very prosperous month. As this firm does not usually sell in large quantities, but mostly supplies the demands of small building operations, the present pre-election disturbances do not have very much effect on its trade.

As by the order of the chief of the fire department the building occupied by the Shubert Theatre has been condemned as unsafe, it is very probable that this faction of managers will soon begin the erection of a theatre. In addition rumors are also floating about the projects of both local and foreign capitalists who are alleged to be contemplating building a skyscraper hotel.

With the opening of the branch office of the National Mosaic Flooring Company, of Mobile, in this city, a new industry makes its initial bow in Birmingham. As is well known, the beautiful and artistic qualities of the flooring of Cuban, Spanish and South American public buildings as well as private residences is due to the peculiar tile used in the make-up of the floor. Although many countries, and especially the United States, have attempted to imitate the workmanship, all have failed, for it requires special machinery and a sort of Spanish skill to create such works of art. However, Americans desirous of beautifying their buildings with these tiles, which are 8x8 inches and can be combined in over 250 designs, can obtain them now with ease since the establishment of a factory at Mobile employing several hundred Spanish and Cuban workmen. It is the aim of the promoters of this industry in the United States to create a nation-wide demand for their goods, and there is no doubt but that they will succeed if the quality of their products are indicative of success.

Mr. Walker, of the Carolina Portland Cement Company, in an interview had the following to say: "Business conditions have been fairly good during the past month and as prospects for the future are bright, we have no complaint to make. During the last few weeks we placed several large orders, among them one of 3,000 barrels of cement for use in the construction of a dam near the city. Sand and gravel have been going as usual, but lime has been unusually active."

A newcomer to the already swollen list of suburbs is Westleigh, which the Jemison Real Estate Company is turning into one of the most beautiful spots of the district. The fact that George H. Miller, the man who laid out Corey, has been engaged for the same work here, is in itself a guarantee of the attractiveness of the new community. The work of constructing the sidewalks, curbs and gutters is well under way, and will soon be completed.

Much interest has been aroused among local contractors and retailers anent the act of the city commission in declaring void all ordinances for street paving work not yet begun. This action has annuled provisions for paving work costing over a half million dollars, but there can be no doubt that these ordinances will be reintroduced and passed without any further trouble.

ILLINOIS RETAILERS.

Springfield, Ill., August 21.—Judging from the prospects and hopes of Central Illinois retailers business shows no signs of sudden affliction. Building permits are running slightly behind last year in several cities, but in most there is a pleasing steadiness. Springfield continues to thrive mostly upon the love for the "home sweet home," the southwest part of the city being especially active. In Peoria permits were issued in one day for $24,000 worth of new houses all medium size.

The J. H. Patterson Company, of Marengo, has voted to increase its capital stock from $65,000 to $150,000. J. H. Patterson is president and W. C. Linderman secretary of this concern, which does a big building material business.

J. H. Schuck & Son, 923 East Jefferson street, Springfield, are as busy as the proverbial cranberry merchants. They have been in Springfield long enough to become firmly established and their extensive yard near the Wabash railroad tracks contains a line of lime, cement, plaster, sewer pipe and flue lining that will please any customer inclined to be exacting. J. Henry and Charles Schuck are the members of this firm.

The Klemeyer Lumber Company, of Newton, has erected new warehouses 50x100 feet with a 20-foot roadway between them.

The retail yard of A. Eielson, Springfield, has been improved and repainted.

L. J. Danforth & Co., of Washington, are exploiting Chicago AA Portland and Medusa Portland cements and Tiger brand hydrated lime.

Samuel G. Wylie Gardner, 57 years old, for thirty-five years manager of the Braden Lumber Company of Sparta, is dead at his home. His widow and six children survive him. He was one of the most respected business men of the community.

The Desplaines Lumber and Coal Company, of Desplaines, has been incorporated with capital stock of $25,000. The incorporators are Barney L. Franzen, Sr., Barney L. Franzen, Jr., and George E. Franzen.

Davis & Hopkins, retailers at Princeton, have embarked in the contracting business, thereby increasing their sales of materials.

The Itasca Lumber and Feed Company, of Itasca, has been incorporated with capital stock of $15,000 to deal in building material. The incorporators are George Franzen, Ernest Kragel, and Herman W. Franzen.

The Truby Grain Company, of Joliet, has been incorporated with capital stock of $100,000. It will deal in building materials. The incorporators are



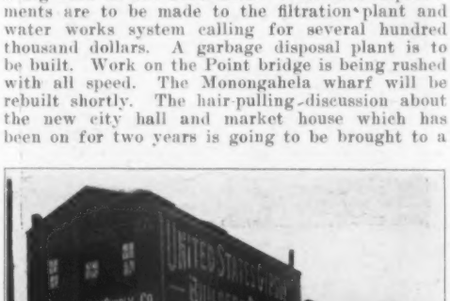
OFFICE AND YARD OF J. H. SHUCK & SON, SPRINGFIELD, ILL.

Henry E. and Charles L. Truby and C. Winfield Brown.

The Aurora Builders' Exchange, of Aurora, has been formed and incorporated under the laws of Illinois for mutual benefit. The incorporators are Thomas F. Peaks, William H. Graham and Edmund L. Sylvester.

PITTSBURGH RETAILERS.

Pittsburgh, Aug. 20.—A very much better feeling prevails in Pittsburgh. There are several reasons for this. One is that Pittsburgh has lots of faith in its new council of nine members appointed by Governor Tener under the new commission form of city government. They are business and professional men, not politicians, and they are going to earn their $6,500 a year salary by running the affairs of Pittsburgh in a business way. No longer will the big bond issue authorized last year be allowed to lie in local depositories at 2 per cent, while the city is paying 6 per cent on the loan. The new council is humping itself to spend this money early and wisely. Work has already been started on the big project of raising federal and other north side thoroughfares, which will eat up a big slice of the bond issue. Extensive improvements are to be made to the filtration plant and water works system calling for several hundred thousand dollars. A garbage disposal plant is to be built. Work on the Point bridge is being rushed with all speed. The Monongahela wharf will be rebuilt shortly. The hair-pulling discussion about the new city hall and market house which has been on for two years is going to be brought to a



PLANT OF THE PEORIA BUILDERS' SUPPLY COMPANY, PEORIA, ILL.

speedy conclusion by the new council getting a site and arranging to spend the $1,500,000 appropriation. These big improvements being pushed by the business council are having a splendid effect on building and industrial operations. Retailers throughout the city report not only a considerable gain in street work the past month but also a marked increase in building of all kinds. They believe that fall trade will be much improved. In the country the increase in building is less in comparison, because most country operations are started in the spring, but their reports are much better. Prices are being hammered badly in all lines of builders' supplies, but the bulk of business is considerably larger than one month ago.

Knox, Strouss & Bragdon say they are fairly busy. They note a better feeling all around, especially in building circles.

Director Joseph G. Armstrong, of the Department of Public Works, last week added nearly 2,000 men to his payroll of street work. At present more improvements are actually under way than at any time for four years. Among the big ones may be mentioned the Dinwiddie street sewer, $114,000; the Atherton avenue bridge, $85,000; the Larimer avenue bridge, $141,000; the South Eighteenth street improvement, $100,000, and the raising of the streets in the flood district of the north side.

The Beechview Builders' Supply Company reports much new work on that side of the city. Allegheny county has let contracts for macadamizing the Banksville road, one mile out from the city limits, and a new street is also being opened up and paved with brick in Belmont, a suburb.

Houston Brothers Company are doing a very fair business, although their officials say there is no boom in sight. Things look better in general, however, to this concern. The country trade is taking more supplies, especially for street and road work. In Pittsburgh most of the work that they are supplying is for refilling and raised streets. The company's sewer pipe business has been good all summer, but it reports unsatisfactory conditions in the cement business, as prices are very low.

Miller & Coulson are too busy to go on a vacation. Their plant at Salineville, O., is running full and is still behind with orders.

Secretary J. C. Adams, of the D. J. Kennedy Company, has this to say about the market: "We are doing a medium business. There is quite an improvement noted in street work and also in borough jobs. Building is very little better. The cement business is at a low stage both in sales and profit and is worse than last year. We are selling metal lath in fair supply but not in large quantities, as there are few big structures going up at present."

Manager Seaman of the Nicola Brothers Company says that they now have 400 men working at Jenkins, Ky., the new town of the Consolidation Coal Company, which they are building. They already have thirty buildings up and nearly forty more under way. They have three saw mills in operation now, with another to be installed September 1, besides a brick yard and lime kiln and a dry kiln. This is by far the largest contract which has been captured by any Pittsburgh firm this year.

The Montour Brick Company has been incorporated by Edward Fried, F. A. Johnson, Thomas Wilson and Thomas B. Freeman, of Pittsburgh, and James Carson, of Ben Avon, Pa., with a capital of $40,000.

Michael O'Herron & Co., of the south side, have the contract for the South Eighteenth street improvement, 2,100 feet long, which will make that street a 60-foot thoroughfare instead of 33 feet. Work is being pushed rapidly. Another south side firm, Thomas Cronin & Co., are busy widening and paving Forest avenue, in Avalon, a north side suburb.

The United Fire Brick Company has resumed operations at its plant at Connellsville, Pa., after a shut-down of six months, and is now employing 150 men. The company has just been awarded a contract for 5,000,000 brick for Washington county roads.

A new builders' supply concern in Pittsburgh is the Ardmore Lumber & Supply Company, which will have its plant and business in Ardmore, a suburb of the east end. The incorporators are M. L., F. J. and W. P. M. Shaver and J. M., Frank and E. J. Lesher.

Foster Bros., Bradford, Pa., have purchased the Standard shale brick plant at Matthews Run, near Youngsville, Warren county, Pennsylvania, for $10,000. The company will be reorganized with a capital of $60,000 as the Youngsville Brick Tile Company.

The Eastern Cement Gun Company, Wilmington, Del., obtained a charter under Delaware state laws August 1, capitalization $2,500,000.

The McCord Contracting Company, of Manhattan, has been incorporated with a capital stock of $100,000 to do a general contracting business. The incorporators are I. L. McCord, E. Norton and A. H. Jackson, all of New York City.

Herman E. Loky & Co., of Manhattan, has been incorporated to manufacture and deal in cement, steel, lumber and building materials with a capital stock of $25,000. The incorporators are H. D. Nims, W. B. Benton and D. B. Beale, all of New York City.

The Kelly-Brayton Company, of Amsterdam, N. Y., has been incorporated with a capital stock of $50,000 to manufacture and deal in building materials, lumber and stone. The incorporators are W. H. Kelly, A. H. Brayton and M. C. Brayton, of Hudson Falls, N. Y.

CEMENT

Association of American Portland Cement Manufacturers

Meets Semi-Annually.

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THE CEMENT SITUATION.

There has been a marked improvement in the tone of the cement market recently, and it would seem as if there was every reason to believe that from now on conditions would continue to improve. It will be some little time before the New York and Chicago subway projects will be ready for cement, but these and other big operations will make a decided improvement when they are started. Retailers of builders' supplies are buying more freely as a result of the raise in prices.

The Piedmont Portland Cement Company is installing additional machinery in its plant at Portland, Ga., to increase the daily output 250 barrels of cement. A larger capacity was found necessary in view of the fact that the demand for the company's product is larger than the capacity. The capital stock will be shortly increased so that by January 1 the capacity of the plant will run up to 1,500 barrels of cement daily.

The work of placing two new kilns and other improvement features in the plant of the Atlantic & Gulf Portland Cement Company at Ragland, Ala., has been almost finished. When the plant was first built provisions were made for an annex should the business ever grow to justify same, and the work of placing the kilns and other machinery was easily done. The new laboratory and commissary building will shortly be completed also.

The 3,000 barrel plant of the Clinchfield Portland Cement Company, of Kingsport, Tenn., has almost been finished and will soon be in operation. The plant was designed by S. Henry Harrison and was erected under his personal supervision. The officers of the corporation are: John A. Miller, president; H. R. Dennis, vice-president; William N. Bennet, secretary and treasurer; S. Henry Harrison, general manager; David H. Houston, sales manager, and Frank E. Walker, chemist.

The United States government engineering offices have awarded a contract for 35,000 barrels of fine cement to the Southern States Cement Company, of Rockmart, Ga., for about $70,000.00 to be used in the work on the Coosa river at Mayo's bar, near Rome, Ga., and at lock No. 4, near Lincoln, Ala.

U. S. Consul Charles S. Winans at Seville reports that in 1910 9,996,565 kilos of cement were imported there from foreign countries as compared with 9,341,871 kilos in 1909.

The Jamestown Portland Cement Company, with offices in the Buller Building, Philadelphia, and works at Yorktown, Pa., has let the contract for the erection of its plant to the American Cement Engineering Company, of New York.

CEMENT COMPANY DISSOLVED.

Selma, Ala. August 17.—The Minona Portland Cement Company organized in 1906 with a capital stock of several hundred thousand dollars, has been dissolved by a decree issued by Judge J. W. Mabry, of the city court of Selma. The decree was issued upon a petition from the preferred stockholders of the company, they assuming all outstanding indebtedness against the company and the costs of all litigation. The preferred stockholders had paid in $35,000.00 and they will receive about 91 cents on the dollar paid in. Common stockholders in the company paid in about $5,500.00. As soon as the holdings of the company are disposed of the common stockholders will be paid dollar for dollar on the stock they hold.

When this company was formed, in 1906, valuable concessions of large tracts of land were acquired near Epps, Ala., in the western part of the state, and it was proposed to built a large plant there and engage in the manufacture of cement. It is believed that all this would have been carried out had not the panic of 1907 knocked the proposition on the head. The panic stopped the formation of the company and since then nothing was done toward organization.

TIDEWATER PLANT BEGINS OPERATIONS.

On August 15 the Tidewater Portland Cement Company formally opened its large Portland cement plant at Union Bridge, Md. Governor John K. Tener, of Pennsylvania, was present and threw in the switch that put in operation the machinery of the new plant. A special train brought a large number of guests from Baltimore, New York, Pittsburg and other points to witness the inauguration of the new enterprise, which is one of the largest in Maryland.

The plant of the Tidewater Portland Cement Company is located at Union Bridge, Md., 45 miles from Baltimore, on the Western Maryland railroad. It is exceptionally well situated, as it commands both the markets of Baltimore and Washington, and is also near enough to tidewater to reach most of the Atlantic seaboard cities at a low freight cost. The plant has a capacity of 1,000,000 barrels of Portland cement and 25,000 tons of hydrated lime annually. In addition to the above, the Tidewater Portland Cement Company will manufacture a waterproof cement and also white Portland cement.

The hydrated lime plant (which was installed by the Kritzer Company, of Chicago) has been in operation for about a year and its product is now well known in its territory.

The raw materials at Union Bridge consist of an unusually pure limestone, resembling marble in appearance, and a volcanic shale. These two materials are found side by side within a hundred yards of the mill, and the deposits are practically inexhaustible.

The power plant of the Tidewater Portland Cement Company is equipped with Rust vertical boilers, which are fed by Roney stokers, and with Wisconsin engines directly connected to General Electric Company's generators. All the machinery throughout the mill is electrically driven. Even the elevators and conveyors have their separate motors. All three grinding plants—raw mill, coal mill and clinker mill—are equipped with Fuller-Lehigh mills. The kilns are 8 by 125 feet each and were made by the Vulcan Iron Company. The driers and coolers were also made by this firm. The driers are three in number—one for shale and two for limestone—and are arranged so as to take the waste heat from the kilns, making hand firing unnecessary, and so saving fuel. Each kiln is provided with its own cooler, and these latter are placed below the kilns so that the air for combustion must pass through them, and thus become preheated by the hot clinker discharged from the kiln.

The crushers are four in number—one No. 8 and two No. 6s are used for limestone, while the other, also a No. 6, is used for shale. The No. 8 crusher is arranged to discharge directly into the No. 6. The stone is handled by means of pan conveyors. The coal for both burning and power is discharged from a trestle onto a pile, beneath which runs a tunnel, and in this tunnel a belt conveyor. There is also a large clinker storage. The storehouse will hold 80,000 barrels and is equipped with self emptying bins and Bates valve packers. Avery automatic scales are used throughout the plant, both for mixing and recording.

The officers of the company are: John K. Tener, president; J. T. Fanning, vice-president; B. T. Scott, vice-president; Owen B. Murphy, secretary and treasurer; Richard K. Meade, general manager; R. N. Soper, sales manager; J. Dreisbach, superintendent; Dr. E. A. Slagle, chemist.

THE MEMPHIS CEMENT MARKET.

Memphis, August 12.—The Tennessee cement market despite a very good amount of summer building that has been in progress, has been much cut up. There is also considerable paving work going forward in which cement is being utilized. Prices have been shaded all the way from $1.50 to $1.25.

THE WHITEHALL.

Completely Remodels Its Plant and Installs New Machinery Under the Supervision of President Harding.

The trade will be pleased to know that the Whitehall Cement Manufacturing Company, one of the "old reliables," is preparing to join the grand chorus of cement mills with a newly constructed plant. The last of the finishing touches was done August 15, the work having been begun March 7. Exactly five months and eight days were required for the remodeling, and the result is a mill that is most complete and up-to-date in every respect. There are five kilns, each eight feet six inches by 120 feet long, with a stack to each kiln 110 feet long by 7 feet 6 inches in diameter. Preparatory to placing these new kilns the old ones were all taken out. No. 9 and No. 6 Crushers of the McCully type were installed and the old kilns were converted into dryers. Jeffrey mills 36 by 42 were installed for the preliminary work on the raw material end of the plant. The whole plant is equipped with only 14 elevators to produce from 3,000 to 4,000 barrels of cement per day. Large tube mills, made by the Allis-Chalmers Company, 7 by 22, and large Smidth tube mills 6 feet 6 inches by 22 were installed on the raw and finishing side. The steam plant, boilers, engines, generators and motors have been thoroughly overhauled in every respect.

With this new equipment the company is well prepared to re-enter the field and the friends who know of the admirable qualities of the officers and selling force wish it every success.

All the changes and improvements were made under the personal supervision of President W. H. Harding, who is not only one of the best posted men in the manufacturing end, but in the selling end as well. The plant of the company is located at Cementon, Pa., and the main offices are in the Land Title Building, Philadelphia.

NEW YORK CEMENT NEWS.

New York, August 16.—There has been an increase noted in the demand for cement during the past month. Prospects for better conditions are bright, and dealers are looking forward to large business in the fall months. There is much construction work under way, such as the Woolworth Building, McAlpin Hotel, work on the Aqueduct, deep water pressure tube and the subways, and, as previously announced in ROCK PRODUCTS, these jobs will require large amounts of cement, and cement dealers will be busy for some time to come.

E. B. Morse, of the Frank B. Morse Company, reviewed the general conditions in the cement trade as follows: "Business during August on the whole has been much better than that of July and there is every indication that it will increase from now on. It is about time that conditions have improved a little and we look for a better demand during the next few months. The cement trade is just getting over the effects of the intense heat during the last two weeks in July which brought business to a standstill. There has not been any changes in prices and cement is quoted at 80 cents in bulk, at mill. In my opinion, the demand for cement will be much heavier in the next month or so as the outlook is bright."

S. Wells, manager of the New York office of the McCormick Waterproof Portland Cement Company, stated: "The demand for our water-proofing compound was very good during the past month. We have closed contracts for a few big jobs for which we had lines out and these orders will keep us busy for some time. During the past two weeks we have received a number of favorable inquiries which are very encouraging, and are of the opinion that we will land them in due course. Prospects for a good business in the fall months are bright."

G. A. Molitor of the Northampton Portland Cement Company stated: "Trading in the local cement market was fair during the past month and prices remained unchanged. There are quite a number of big jobs under way which will require a very large amount of cement, lime, plaster and other building materials in the near future, but as yet work has not been started. The prospects are bright and there is every indication that business will improve during the next month or two."

Mr. Sheppard of the Lawrence Cement Company stated: "There has been a slight increase in the demand for cement during the past month. Business during the month of July was practically at a standstill although there was a moderate improvement in the volume of inquiries during the last few weeks. Prices remain quotably unchanged. We look for a good fall business."

WEST COAST CEMENT NEWS.

San Francisco, August 14.—Shipments of cement to the north continue heavy, the total sent from California to Portland, Ore., from January 1 to the middle of July amounting to 2,124,833 sacks. The demand in San Francisco is all that could be expected, but business of a large nature in the interior is rather slow to develop, though there is no lack of inquiries. The San Francisco Supervisors have been holding back their orders and haggling over prices, the threat having been made to import cement and sell the surplus to contractors.

In connection with the improvements to its plant at Cement, Cal., the Pacific Portland Cement Company has applied for permission to run an electric power line over a county road in Solano county.

The bondholders of the Sunset Plaster & Cement Company of Los Angeles, Cal., have secured a controlling interest in the stock and brought about a reorganization. The new officers are G. W. Tighe, president; E. A. Case, vice-president, and Herbert Walker, secretary. The offices have been removed from Los Angeles to Fillmore, Cal., the site of operations, and arrangements are being made to complete the construction of the mill at that place.

The cement works at Acme, N. M., have been taken over by the Roswell, N. M., Lumber Company.

CHICAGO CEMENT NEWS.

Chicago, Aug. 21.—The cement trade here is in a much better condition than it has been for a long time. Since the first of the month all of the large cement manufacturing companies have raised their prices and the indications are that the new price will hold. The demand for cement has strengthened and the retail dealers are stocking up in anticipation of a heavy fall trade. Although there are not many extra large contracts being let, there are a number of small jobs which are boosting trade.

Bert Swett, of the Lehigh Portland Cement Company, stated in reviewing conditions: "The cement business is picking up in fine shape now and the prospects for fall trade are very good. The dealers are having a lot of small work, which is helping trade a good deal. Prices have strengthened somewhat in the past month and all indications are very satisfactory for fall business. Prices will probably go higher with the increased demand."

B. F. Affleck, of the Universal Portland Cement Company, spoke as follows in reviewing conditions in the cement trade: "Business is considerably better than it was last month. The fall trade is heaviest among the farmers and the outlook for this class of trade is good. The crops in general have been normal and as farmers are not affected much by financial flurries or depressing conditions in the cities, they will probably do some good buying. Prices all over the central West have advanced during the past month and Chicago prices have also advanced. Dealers' stocks are moving and building permits are growing. Permits issued this month eclipsed in value those of July. This was due to several large projects."

D. Richter, western representative of the Alpha Portland Cement Company, stated: "There is no question but that conditions in the cement business have materially improved since the first of the month. Orders are coming in more freely and the general tone of the market is better. Prices have stiffened and this has a good effect on the trade, the reverse of low prices, which demoralize the whole trade. I believe that this fall business is going to be very good."

Edward L. Cox, of the German-American Portland Cement Company, stated: "The market for cement has advanced 10 cents a barrel and business is good. The demand is increasing and prospects are bright."

Gold Williams, of the Marquette Cement Manufacturing Company, stated: "The demand for cement has increased so much since the first of the month that prices have been advanced and are now pretty steady. I believe that the demand will hold. Dealers are stocking up and are causing a little rush and in all probability the new price will last for at least another month. Fall business is expected to be good, although there are not many extra large contracts coming out. In some localities the farmers will buy heavily this fall, but the city trade will be the best."

PHILADELPHIA CEMENT NEWS.

Philadelphia, August 16.—An undeniable slump in the cement market for sometime past must be admitted, attributable mainly, it is conceded, to the backward summer season, the which, upon arrival, proved one of such abnormal heat as to absolutely defy all attempts at out-of-door work. Although it is stated that cement is moving more briskly than for some time, trading is described as spasmodic in character, and the recuperation from recent depression is slow.

The total of building permits for the month of July, in fact, for the first six months of 1911, has established a record, and the average building supply house has been busy, but in the total of material used, cement holds but a minor place, as the buildings are mainly of the two-story dwelling kind, and use principally brick or wood.

Some of the cement dealers are much encouraged over the recent stronger market, but the conservative concerns regard the outlook at this season too uncertain to make calculations—they are hopeful, however, of a betterment when economic problems cease to trouble. Reports on the Southern market show considerably more life, and some excellent deals have recently been made in the land of cotton

The Vulcanite Portland Cement Company, Land Title building, reports July trading the worst ever recorded for that particular month. There has been a slight forward move of late, but of an erratic character. A strengthening in the market is predicted by the optimistic as the fall season advances.

H. M. Fetter, vice-president, William G. Hartranft Cement Company, Real Estate Trust building, says business in the local market has been way off and July trading surprisingly slow. The late season and the unprecedentedly hot waves following absolutely upset all chances for business. However, his company has been more fortunate in the South, where it was successful in closing some very desirable deals. As a specimen may be mentioned a contract for 100,000 barrels of "Old Dominion" cement for the Appalachian Power Company Development, in Virginia and West Virginia, of which Viele and Blackwell and Buck, of New York, are the engineers. They are also supplying 40,000 barrels of the same material for the lock and dam, No. 14, Kentucky river, Kentucky, which work is in charge of Gahren, Dodge & Maltby, contractors, New York. Another desirable deal is an order for 40,000 barrels of this popular cement for the Yodkin River Power Company, Pee Dee, N. C.

LOUISVILLE CEMENT NEWS.

Louisville, Ky., Aug. 15.—The cement trade of Louisville and Kentucky offers one of the brightest spots in the entire southern situation at present, owing to the fact that the biggest building boom in the history of the Gateway City is on at present and the cement interests could not very well help being benefited by the boom.

The report from the office of the City Building Inspector indicates that a greater volume of building permits has already been applied for to date than was issued the year and a half previous to the present fiscal year, which closes August 31. Building Inspector Tilford predicts that the year 1910-11 will roll up to the imposing total of $6,500,000 worth of building in Louisville, and with a fine proportion of this work tending along concrete construction lines the cement business must necessarily be brisk.

Probably $2,000,000 of this year's building is yet to be begun and completed, so there is no chance for the cement men to have a "kick" coming from now until the time that cool weather prohibits further structural operations. From a local standpoint, therefore, business has been phenomenally good, and promises to continue in this gratifying vein for the rest of the building season.

"In my estimation the building interests of Louisville, including the cement men, have been unusually fortunate this summer and will probably remain in this good fortune for the rest of the year," said Henry Gray, treasurer of J. B. Speed & Co. "Country-wide factors have been unfavorably inclined toward the building interests, but happily a memorable boom along this line has struck Louisville and matters are progressing apace. We recently enlarged our mills over at Speed's Station, Ind., so that the capacity was increased approximately 40 per cent, making our daily capacity now average 3,000 barrels per day of Portland cement."

The Kosmos Portland Cement Company, although having experienced a slight decline in its more general operations, reports that local and Kentucky business is exceedingly brisk. The cement men out at Kosmosdale have profound faith in the future of the industry this season, for a complete rearrangement of conveyor systems has been installed, providing belt transmission to facilitate the rapidity and minimize expense of handling raw materials. It is also probable that new equipment will be installed in order to materially increase the capacity of the Kosmos works. Office Manager S. E. Flexel expressed himself as being very optimistic over the outlook for fall. C. M. Dugan, general manager of the Kosmos Portland cement plant at Kosmosdale, Ky., returned a short time ago from a vacation trip of several weeks' duration through the lake region of Wisconsin. Mr. Dugan reported that some fine nimrodding exists in the northern wilds. Charles Horner, an officer of the Kosmos Portland Cement Company, has been making a name for himself as an exponent of the national game about Louisville. Mr. Horner is sungardener in the lineup of the Louisville Country Club baseball team, which has played and won several exciting games, with the Kosmos expert figuring in stellar capacities.

Four farms, with an aggregate acreage of 900 acres, in the vicinity of Oolite, Meade county, Kentucky, were purchased last week by Urban C. Brewer, of New York City, with a view toward utilizing the tract for the establishment of a big cement manufacturing plant. Mr. Brewer paid in the neighborhood of $20,000 for the land as a whole. Further details regarding the formation and establishment of the cement manufacturing concern are yet to be announced. Geological surveys have proved that valuable mineral deposits for cement manufacture are on the ground.

The Buffalo Carey Company, of Buffalo, N. Y., has been incorporated with a capital stock of $25,000 to manufacture and deal in building materials, asbestos products and roofing materials. The incorporators are W. C. Brown, W. R. Pooley and N. B. Hoag, all of Buffalo, N. Y.

NEW GRAVEL PLANT TO OPERATE.

Extensive work now under way at Joliet Mound, below Rockdale, Ill., is being rapidly pushed for the Chicago Gravel Company, which expects soon to start shipments of gravel.

In addition to the laying of railroad tracks to the plant by the Rock Island Railroad Company, expensive machinery for excavating and handling the gravel has been installed.

The Indiana Sand & Gravel Company, of Chicago, has filed notice that William Woodhall, Jr., of Kickapoo, Ind., has been appointed its agent for Indiana.

A petition in bankruptcy has been filed against Cornelius J. Gallagher, dealer in sand and gravel, 308 East 35th street, New York City. The liabilities are placed at $20,000 and the assets $1,000.

The Acme Sand & Gravel Company has been incorporated at Manhattan, N. Y., to deal in sand and gravel and other building materials. The capital stock is $25,000. The incorporators are L. A. J. Scherer, P. C. Scherer, Brooklyn, and E. R. V. Coon, New York City.

WEST COAST SAND AND GRAVEL NEWS.

San Francisco, August 14.—Sand is brought to San Francisco from many localities, including beaches down the coast as well as pits in the interior of the state; but on most of this material transportation charges are so high that it is used only for special descriptions of work. For the cheaper classes of work, large quantities of sand from local banks are used, but in addition to this a great deal of good river sand which can be sold at reasonable prices is required. Most of this is obtained by the use of suction dredges in the Sacramento river, and is brought to San Francisco in boats or barges. Gravel for city use is also obtained by dredging in creeks around the bay. The greater part of the sand and gravel business is now concentrated in the hands of a few firms, one of the largest of which is the Bay Development Company. This company has large bunkers at 153 Berry street, with a frontage on channel creek, where boats and barges are unloaded by a large Browning Engineering Company crane, and where wagons are loaded for distribution through the city. The company has a suction dredging and washing outfit for gravel on Napa creek, and in connection with the gravel business uses a fleet of towboats and barges. For the transportation of sand the company uses a gasoline boat of about 400 tons, carrying a pumping outfit by which the sand is taken from the bottom of the river. The company also does considerable business in crushed rock, which is obtained from a quarry at San Pablo, Cal., and brought to the bunkers in barges. The number of teams used for delivery varies considerably, but is never less than eight, and sometimes as many as fifteen are employed. The company reports the local business just fair at present.

A plant for the manufacture of concrete building blocks and other concrete products will be established at Red Bay, Ala., by E. P. Auger and F. A. Smith. A company has been formed, known as the Red Bay Concrete Manufacturing Company, and plant will be built at once.

GERMAN METHODS

In Portland Cement Manufacture Contrasted With American Methods by Dr. Otto Schott, the Well Known Technical Chemist of Heidelberg.

(Continued from last month.)

A disadvantage, however, is that with frequent rains the heap of material often gets wet, and the drying is rendered difficult. On this account some cement works in Germany have recently introduced the glory-hole method. At the foot of the quarry a single passage 100 to 130 feet deep is driven into the quarry side, and from the end of the same a shaft is bored straight upward, until the surface is reached. At the foot of this shaft there is fitted a horizontal door sliding on rails, which can be opened and shut by means of a lever. They then start to widen the top of the shaft funnel-shape by loosening the material around the shaft and letting it simply roll down to collect on top of the closed sliding door.

The wire rope-way is brought right up to this slide, the cars are run under, the slide opened until a car is filled and then closed. The full car now runs automatically on the wire rope into the works. Such a glory-hole yields with four men (two up above, two down below) 300 square yards of material in a twelve-hour day. The benefit of this method lies in avoiding the picking up of the material with the hand or steam shovel, and at the same time it has the advantage of safety and of blending the different layers. Besides, in rainy weather the water runs off down the steep sides, so that the material keeps dry.

As I have already remarked, the material forwarded by wire rope or suspended monorail direct into the works is tipped direct into the crushing machinery. Unlike America, the Blake crusher is still preferred in Germany, and the Gates crusher is very seldom met with. If the material is not so hard, the so-called crushing-worm is often used. The same consists of a thick shaft provided with grooves, which rotates between horizontal bearings inside a casing lined with steel plates.

For drying, the Cummer rotary drier is much used in Germany. In general, the German rotary drier has a much smaller diameter than the American, usually only 39 inches. In America coal-dust has been applied in recent years for heating the rotary driers, an arrangement which the Portland Cement Works of Heidelberg and Mannheim introduced twelve years ago in all their works, except that there was built in front of the cylinders a chamber with grating in which the firing took place. It has been proved that with the use of coal-dust the drying of the raw material is much more thorough and the coal consumption less.

I should like to make mention here of a special rotary drier, with which the utilization of the hot gases is profitably increased by the division of the inside of the cylinder in separate cells. By this means a more uniform distribution of the material in the interior of the cylinder is obtained, and the surface is also increased, which facilitates the drying. With very wet material there is naturally the danger of some of the cells getting blocked up, but for drying coal a more ideal rotary drier cannot be imagined.

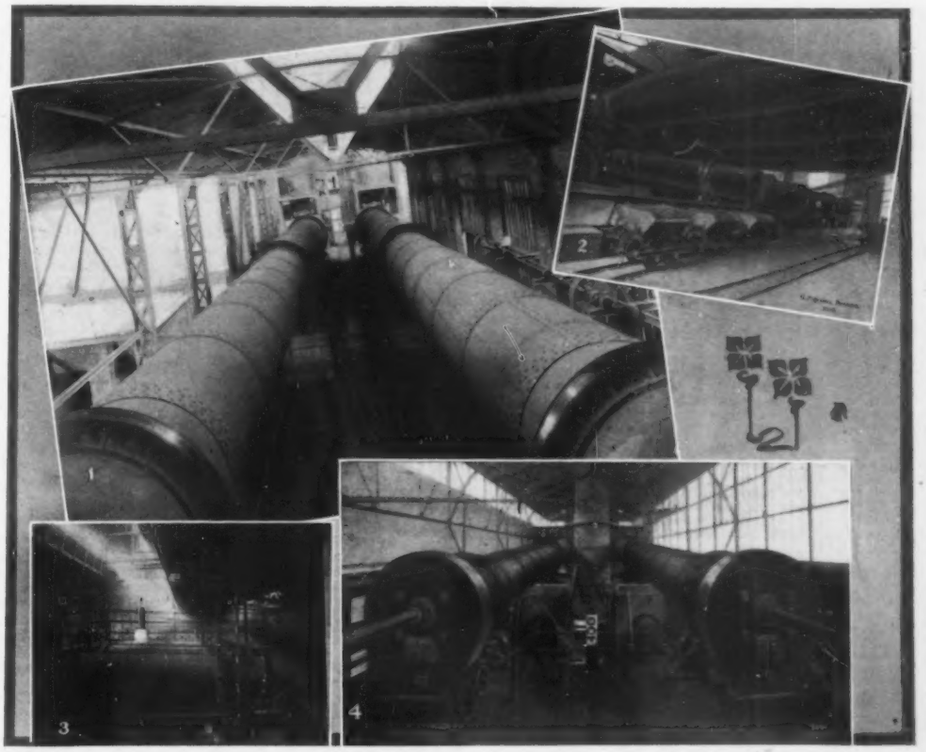
With such a drier, 6 feet 6 inches in diameter and 33 feet long, 180 tons of rather small moist coal are daily dried at Heidelberg.

For grinding the raw material the same systems of mills are used in Germany as here in America, namely, ball-mills, Kominor, tube, Griffin, and Fuller mills.

The Portland Cement Works, Heidelberg, have nothing but Griffin mills running in six of their seven factories, on both raw material and cement. They are extremely well satisfied with them, and get a larger output with them than the Americans. However, some improvements have been made on the mills. Recently two large Fuller mills were started running at Heidelberg; the trials with them have not yet been concluded. In Germany the Kominor with the tube mill is most met with, though this does not by any means prove that this system of grinding is especially economical. But, on the other hand, the ball and tube mill is a very reliabl emethod of grinding, and it requires little attention.

It will interest you to know that in Germany experiments have also been made with burning the material before grinding. It was also a success when the raw material was crushed to 1-inch lumps. This burnt raw material proved, however, very difficult to grind. The output of the mills was reduced by one-half, and on this account the matter was not followed up. In any case the burning of the raw material is nothing new.

On the other hand, I have seen in another factory the very soft and wet material—similar to that in Sandusky—being dried in a rotary drier 120 feet long and 6 feet 6 inches in diameter and slightly burnt at the same time. In front of the furnace there is a special combustion chamber. The firing is done with coal-dust. This factory, which formerly could never get its raw material dry, is now working very successfully.



1—TWO KILNS WITH COOLERS. 2—COOLING CYLINDERS. 3—FOURTEEN KILNS IN HEIDELBERG. 4—FRONT VIEW OF GERMAN KILNS.

The mixing of the raw material in most factories in Germany differs from the American method. The arrangement you have here in many places, of weighing the clay and the lime and then mixing it, is rarely met with in Germany.

Most works are able, on account of their favorable raw material, to make approximately the correct composition and mixing in the pit, where the removing of the raw material is done exactly in accordance with the instructions of the chemist. The chemist knows exactly which layers contain more lime and which contain more clay. In accordance therewith he has the proper proportion of clay and lime sent up. In the German works the chemist takes the first place, and he also supervises the whole of the machine plant. You will therefore mostly find at the head of the cement works in Germany a so-called technical chemist, who has a few assistants at his disposal in the laboratory. Every two hours the percentage of lime in the raw material is determined in the laboratory, and according to whether it turns out high or low, instructions are given to send up more clay or more lime. Frequently it is not necessary to make any change for days together, as the lime and clay strata are fairly uniform in their composition. No importance is attached to the mixture being absolutely even as it comes from the quarry, as usually the real mixing is done only after the grinding of the raw material. For this purpose there are large mixing silos, which hold 25,000 barrels and which are filled up in regular layers during the course of a week, and are then mixed together when withdrawing the ground material. The ground material can be laid in horizontal or vertical layers. A small example will best illustrate this.

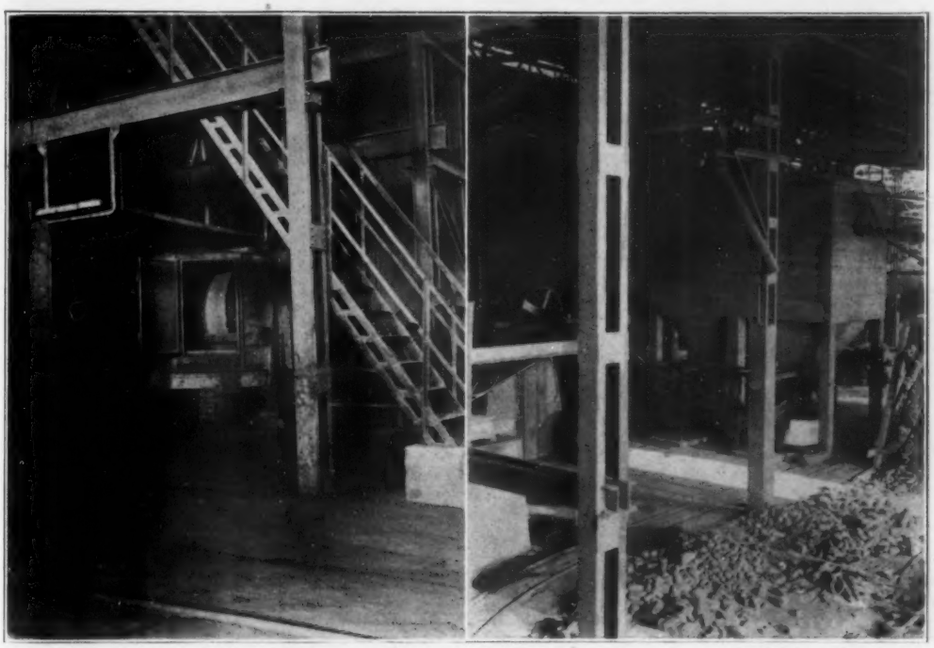
A factory has to adjust its mixture to from 76 to 77 per cent carbonate of lime. The ground material is passed for seven days into the same bin, and care is taken to spread the ground material in uniform layers by means of suitable conveying machinery.

If the material has been stowed in horizontal layers, the different layers fall together when emptying the bin, and so give an average of 76.6 per cent carbonate of lime.

With vertical layers the conveyor is placed under the bin, and the material is allowed to run regularly into it from each layer through special openings, and by this means an average of all the different layers is obtained. As the composition of each layer is determined daily in the laboratory, a calculation can be made in advance as to what the average of the seven layers will be. There are usually two bins, and while the one is being emptied the other is being filled. The great advantage of this mixing plant is that very large quantities are mixed together, by which great uniformity is obtained. Besides, no machinery is required and the making of the proper mixture is entirely in the hands of the chemist.

In Westphalia the raw material has naturally nearly the correct composition, and the ground material is only once more passed through a mixing machine.

The burning of the cement is today done in rotary kilns in two-thirds of the German factories. Vertical kilns and Hoffmann ring kilns are still found, but only in places where wages are very low. As the latter do not come into question in America, I will not dwell upon them. Regarding the construction of the rotary kilns, they differ only slightly from the American kilns. The first kilns were built 81 feet long and 6 feet diameter, but the length was gradually increased to 120 feet, and recently kilns have been erected 150 feet long. These are the longest up to the present. People in Germany are not yet quite



EDGE RUNNER FOR CRUSHING THE CLINKER.

GYPSUM BIN WITH AUTOMATIC FEEDER.

clear as to whether the long kilns are better, especially as they have been able to use the waste heat with advantage for other purposes. The economy of a kiln and not the output turns the scale in Germany, and people would sooner put up two kilns of smaller capacity, if the burning can be done therewith more economically than with one large kiln.

The engineering works, it is true, recommended long kilns, 250 feet in length and 9 feet in diameter, as with these the end gases have a temperature of only 200° centigrade, and the heat is best utilized in these long kilns. But no kiln of such ingth is in operation in Germany.

In Germany, where, as you know, fuel is very dear, it was sought from the commencement to utilize the heat as much as possible. On this account each rotary kiln is provided with a cooler, in which the clinker is cooled by drawing air through it. The same fan which blows the coal-dust into the kiln draws the air through the cooler, which is thus heated to 250° centigrade. Thus the fuel is saved which would be required to heat the large quantity of air required for burning to 300° centigrade. Many works also use this hot air to dry the coal. Coolers with a double casing have also been constructed, so that the clinker, after having passed through the inner cylinder, is led back through the outer cylinder, and so perfectly cooled. The air, which in this case is forced from the front into the cooler, reaches a temperature of 300° centigrade.

One company uses water very successfully for cooling the cylinder, the hot water being utilized for feeding the boilers and for the bathing arrangements of the workmen.

The waste heat is utilized in three ways—either to dry the raw material, to warm the air for the kilns, or to raise steam in the boilers.

When drying the raw material with the waste gases from the kilns, the difficulty for a long time was that considerable dust and fine material went out of the chimney, but this is now arrested by water, producing mud which is burnt under the kilns.

When the waste gases are utilized for heating the air of combustion, there are built behind the kilns so-called blast-heaters, which are said to heat the air to 600° centigrade. Many attempts have been made to utilize the waste gases for raising steam, but in most cases without success, as no means were known of keeping the dust from the tubes of the boilers. However, three factories are today using the waste gases of the kilns for raising steam. Two of these factories have kilns 90 feet long, while one uses kilns 120 feet long. The production of steam even with the 120-foot kiln is satisfactory. The steam raised by the waste heat not only suffices to drive the whole of the rotary kiln plant and the coal mill, but also furnishes the power for the larger part of the raw mill. However, special devices of a rather simple nature must be used to keep the dust from the boilers.

The injection of the coal is done by fans, which, as I have already mentioned, draw the air from the coolers. In order to obtain perfect and uniform combustion the coal-dust is fed into the air-current of the fan by means of a system of double worms. By this means the same effect is said to be arrived at as that aimed at by Dunn's uniform pulverized fuel feeder. But according to my observations the problem appears to be better solved by Dunn's apparatus.

Compressed air is not used in Germany for injecting the coal-dust. Experiments therewith showed no benefit. The pipes through which the coal is injected are generally wider than here—usually 8 inches.

The clinkering zone is 13 to 16 feet distant from the head of the kiln.

The lining of the kilns is done either with adhesive sandbricks, firebricks, or bricks made of clinker and cement.

Adhesive sandbricks are useless unless a crust is formed in the kiln, as otherwise the hard clinker causes heavy wear. But if a protective layer of clinker is deposited, then they are the cheapest kiln lining.

In some factories attempts have been made to simply line the kilns with concrete made of a mixture of rotary kiln clinker and cement. It has been found that the concrete in the kiln will last a long time (one year), if the kiln is allowed to stand a few days after the lining, so that the concrete can harden properly.

As you are aware, a patent has been taken out in Germany for a so-called widened clinkering zone. According to this patent, the front part of the kiln, in which the clinkering proper takes place, and which otherwise was only 6 feet 6 inches in diameter, is enlarged to 8 feet 2 inches diameter. It is asserted that by this the output of the kiln is increased and the coal consumption reduced. It is very difficult to get an opinion on this point from actual experience. The manager of a factory who works with such kilns told me the only advantage he saw was that a very thick crust formed in the widened part and protected the kiln-lining very well. In general, the advantages of the widened clinker zone are not yet clear, and preference is given to a kiln the diameter of which is at the outset made wide enough in its entire length.

Whereas formerly the opinion prevailed that the ground raw material should be moistened before being fed into the kiln, many factories have found out a device to burn the dry material. The material falls direct from the conveyor through a pipe into the kiln. By this means the mixing worm, which required attention and much power, is no longer required, fuel is saved, and the output of the kilns is increased by being fed with dry material. Rotary kilns without coolers are not found in Germany, and vertical coolers are also unknown.

The cooling-cylinders are always placed under the kilns and above the floor. The foundations of the kilns are therefore much higher than is usually the case in America.

The lubrication of the bearings is done with calypsol grease. Some works have central lubrication, by which eight to ten bearings are automatically greased by a grease pump.

In general, three kilns are attended to by one burner. Ordinary workmen are usually trained as burners, and on account of their easy work they are paid comparatively low wages. Most works train two or three times more men as burners than they require, and set them to other work.

When the waste heat of the kilns is used for raising steam in the boilers, one man can attend to six boilers, his sole duty being to feed the boilers with water.

The front end of the cooler is perforated like a screen to sort the clinker, and only the coarse clinker requires to be crushed for the cement mill. In front of each cooler an automatic weighing machine is placed, which also makes automatic records, so as to afford an exact check on the output of each kiln. The coal-dust for each kiln is weighed in the same manner, and coal consumption and output are noted hourly on a special board.

We now have in Germany a drum weighing machine, with which everything can be weighed—pulverized coal, cement, and hot clinker. It is very exact and reliable.

As regards conveyors, preference is given in Germany to the belt conveyor and to the worm or spiral conveyor. For hot clinker the so-called shaking conveyor is much used, and it has proved very satisfactory; it is not the type oscillating on wooden spring legs, however, but a shaking trough running on small wheels. This conveyor can transport any quantity, even up slight inclines. I know of a factory which formerly took the clinker away in tip-cars, and now saves fifty workmen after installation of a shaking conveyor.

Some large works have so-called clinker stores, where the clinker is stored and allowed to season.

The clinker is raised by means of a bucket elevator to a height of about 33 feet, and then distributed over the store by means of a shaking conveyor, which is designed to drop the clinker in different places. The removing of the clinker from the store to the cement mill is also done by means of such a shaking conveyor placed in a channel under the clinker store and covered with boards. When the boards are taken up (which one man can do) the clinker falls from the store into the conveyor and is carried away.

The storing and seasoning of the clinker has many advantages. In the first place, the clinker, being dry, grinds better, and the large lumps become soft through storage and easily break. Further, the storage is good for the quality of the cement, and greater uniformity is obtained by being able to again mix the burnt product of several days before grinding.

The cement mill in a German works has the same appearance as in American works. Ball-mills, Kominor, tube-mills, Fuller mills, and Griffin mills are used.

The finished ground cement is stored in large square bins of 25,000 to 100,000 barrels. Preference is given to the largest bins possible. This is to get, when withdrawing the cement, as large a quantity as possible, by which great uniformity is obtained. Round concrete silos, which of late are frequently met with in America, are seldom used in Germany. On the other hand, a large stock of cement ready packed in bags is kept, the bags being piled twenty-five high.

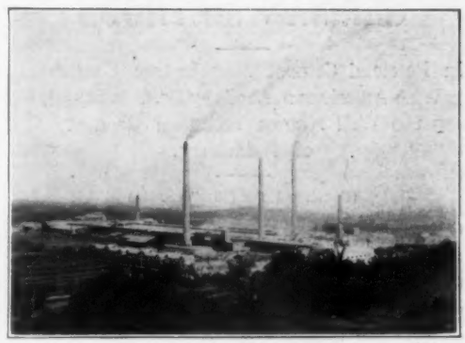
The piling of the sacks is done by a band conveyor.

For packing, the automatic twin scales, system Ironwork Ahlefeld, are much used, which weigh very correctly. Capacity, 1,800 bags in ten hours.

Last year I heard that certain American cement manufacturers who had visited German cement works expressed astonishment at the primitive way in which the cement is packed and loaded in Germany. I presume that the gentlemen in question had only visited some unimportant cement works.

With the high wages of $1.25 to $1.50, which have to be paid in Germany to men in the packing house, you will find today well designed plants in the larger cement works. I will give you a detailed description of one.

The storage house is built so that thirty railway cars go direct into the middle of the house on two tracks running side by side. The room in which the cement is packed is situated on the second floor directly over the railway cars. The cement is taken



CEMENT PLANT IN HEIDELBERG.

from the bins by elevators and conveyors to the thirty automatic packing machines on the second floor, where it is put into bags. The workmen who fill and tie the bags simply let them slide from the second floor down curved tubes, which may be turned around, and which lead into the opened railway wagon. In each case there is a man who takes the bag from the tube and drops it into its place. The packers on the second floor fill the bags as quickly as the man down in the wagon can stow them.

In other works where the railway siding is a long way distant from the packing shed, a belt conveyor leads from the packing shed to the railway cars, and the bags slide down an inclined chute directly into the car, where they are stowed by one man. The belt conveyor runs directly in front of the packing machines on a level with the floor, so that the workmen can lay the bag directly on the conveyor as soon as it is filled and tied up. If six automatic scales are at work, the bags follow one another on the belt conveyor at intervals of 6½ feet, and a car can be filled in ten minutes, though I should here remark that the German railway cars do not hold more than 300 bags.

A special arrangement for packing cement, invented and introduced by the firm of Smith & Co., has been running in some works for about a year. The cement is put into the bags by vacuum.

Gentlemen, you are aware that Germany exports one-tenth of its production. Exports are chiefly from the factories which lie on the coast and the big rivers. As cement is only exported in barrels, all these works have a special cooperage and packing plant for barrels. In order that the barrels may withstand a long oversea voyage, the cement must be tightly pressed. In most factories the packing of these barrels is done by hand, the filled barrels being well beaten with clubs until the cement has thoroughly settled. But there are also machines for this work. The barrel stands on a revolving plate and is kept rotating while receiving a number of powerful shakes from a mechanical device. In order to render them perfectly water-tight, the barrels are lined with water-tight paper.

The making of these barrels forms a special department, which, on account of its liability to catch fire, is usually in a building separated from the other buildings. In Heidelberg, for instance, over a hundred workpeople are employed in this department. With the exception of the putting on of the wooden hoops and the fitting of the lids, the barrels are all made by machinery. The large works have their own saw mills, where the wood, as it comes from the forests, is sawn into cylindrical staffs, grooved, molded, and fitted together by special machinery. The making and putting on of iron hoops is also done by machinery.

Bags made of jute are mostly used, rarely of canvas. Paper bags are still too dear in Germany and therefore not used. The cleaning of the bags is done in the same way as in America, namely, in large revolving drums. Electric sewing machines, with dust exhaustors, are used for sewing and mending. It will interest you to know that a group of twenty cement works in Westphalia have a so-called "bag central," where new bags are made and the old ones cleaned and repaired. The empty bags are sent by the customers to the "central," where they are sorted, repaired, cleaned, and returned to the different works.

The cost of the whole work does not amount to quite half a cent per bag. Only women are employed for mending.

The same group has also its own barrel factory, in which the barrels for about twenty works are made. This, of course, can be done only when the works are close together.

As the German cement works are mostly somewhat old, you will find in them, in contrast to American factories, long, complicated line-shafting, from which the mills are driven. Compared with America, the motor drive is much rarer, but it is gradually being introduced, especially in the more recent works. The firm of Dyckerhoff has installed in its new works steam-turbines, and for driving the grinding machinery nothing but motors.

For raising steam you will find all boiler and stoking systems represented. The stoking is mostly automatic.

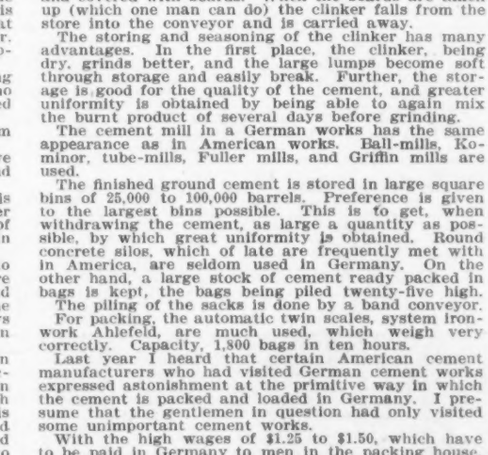
The Leimen factory has a swimming bath 100 feet long by 50 feet wide for the workpeople. Slipper-baths and shower-baths are connected with it. The picture shows you that it has been fitted up rather luxuriously in order to encourage the workpeople to make use of it.

The same works built a music hall two years ago for the workmen, in which they hold their festivities every week. Connected with it there is a "kinder-garten," a library, and a reading-room.

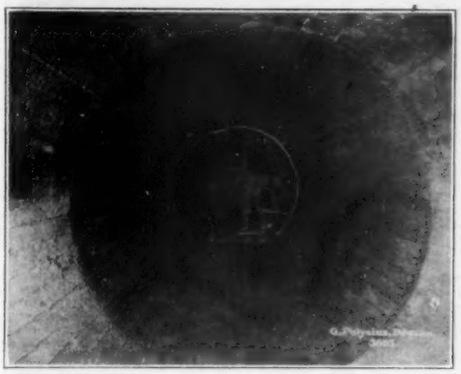
Gentlemen, the same as here in America, many factories have built houses in the neighborhood of the works, in which the workpeople can live at a low rent. Recognizing that it is a great advantage for a factory to have old, well-trained workmen, they are given every consideration. Almost every factory has its own sick fund, saving club, pension fund, eat-



SLURRY BASINS SHOWING TRIPLE MIXER.



WET TUBE MILL AND DOUBLE MIXER.



CONCRETE LINING IN KILN.

ing houses, and canteen. It is nothing unusual for workmen to remain twenty-five to forty years in one factory. Following the example set by America, almost every factory has its own repair shop, and at the Portland Cement Works of Heidelberg and Mannheim, for instance, the repair shop is as large as an engineering works. Not only are all repairs and improvements on mills and machinery made there, but the works have their own foundry, to which a steel foundry is now being added. New machinery is also made there; it is a sort of experiment station for new ideas.

As far as I can judge, the cost of production is lower in Germany than in America, and for this the lower wages are not alone responsible. To counterbalance this, fuel is dearer in Germany. But the German does more calculating; he tries to save every cent, and makes full use of every advantage, as, for example, the temperature of the waste gases, new conveyors, etc. But what gives a special advantage to the different works are the monthly actual cost calculations, which show clearly and to the smallest detail how high the actual cost is in every single branch. The art of correctly calculating the actual costs, of studying the same, and drawing from them the proper conclusions as to where the lever should be applied to lower the cost of production, this art enables many factories to manufacture much cheaper than others, who otherwise are just as favorably placed.

A well-managed works sees from this statement of actual costs where faults are to be corrected, and is urged by it to make the cost still cheaper in the following month by the application of improvements and by making use of certain advantages. And in this manner people have managed in Germany continually to reduce the actual cost of a barrel of cement, in spite of higher wages and dearer fuel. A limit will no doubt be reached in time, but from what I have seen my conviction is that in America you are much further from this limit than in Germany. The Germans have taken lessons from the Americans with regard to their kilns and grinding machinery; let the Americans learn from the Germans how to make use of everything in order to save every cent and make cement as cheap as possible.

I cannot predict offhand which will eventually prove to be more advantageous for America, the wet process with thick slurry or the dry process. But it is possible that in America the wet process may prove cheaper, because fuel is considerably cheaper than in Germany, and therefore the cost of burning the cement, which in any case is higher with the wet process than with the dry, may not be of so great account.

As I am aware that the American cement industry is greatly interested in the wet process, I will say a few words about it at the close of my lecture.

Many of the works situated in the north of Germany make their cement from the chalk on the coast and on the Baltic islands, and are forced to use at the same time a clay containing much sand and flint, and they have, like most of the works in England, always given preference to the wet process. Chalk and clay contain naturally a high proportion of moisture, and are also so soft that they can be reduced to the requisite fineness without mills, simply by washing. In these factories the raw materials are washed very thin with about 80 per cent of water, and, according to the arrangement of the plant, the stones and the coarse sand either settle to the bottom as the heavier constituents, or they are separated from the thin slurry by screens. The slurry runs from the washing basins into large settling basins, where it is allowed to settle. The water collecting on top is let off from time to time, and the sun and air help gradually to dry out the water remaining in the slurry until it becomes stiff enough to be dug out with a spade and pressed into bricks for the shaft or ring kilns, which are still used by most of the factories that work on the wet process. Some of these factories, however, have recently installed rotary kilns, and pump the slurry containing 40 to 55 per cent water direct from the settling basins into the kilns. It is often months before the slurry gets the consistency desired, and it is certainly a disadvantage of this wet process that so much time is lost before the product made months ahead can be actually turned to value. Enormous values are often represented by this half-finished product.

The wet process is considerably more advantageous, when pure chalk and clay are to be had, and it is not necessary to pay attention to eliminating impurities in the shape of quartz sand and flint. The addition of 40 per cent water then suffices to grind the material in the wash-mills. This slurry is then simply run into the so-called mixing basins, where it is stirred up until the mixture is uniform. It is not necessary to thicken further this 40 per cent slurry, and it can be pumped direct to the kilns.

With these two ways of wet preparation it is presumed that the chalk and clay are naturally so soft that no special mills are necessary for grinding.

But it should especially interest you in America that recently some works have started to prepare hard materials like limestone in the wet way by using special mills. This so-called thick slurry process has so far been introduced in Germany into seven factories, of which I inspected five during my last stay in Germany.

Before I give you a full explanation of why, according to the opinion at present prevailing in Germany, thick slurry preparation is to be preferred to dry preparation, I should like to give you a short description of the working of a thick slurry plant.

Such a plant is mostly built in four stories, one above the other.

The material comes from the pit to the top floor. The large pieces of limestone are here crushed to the size of a fist and fall directly onto the wet-kominors placed below. The soft wet clay and marl are fed directly into this wet-kominor, and roughly ground with the addition of water. The rough slurry, which has 35 to 45 per cent moisture, runs into the wet tube-mills, which are placed in the floor below under the wet-kominors, and here it is ground quite fine. The factory has, according to its size, a number of large mixing basins, which lie below and in front of the wet tube-mills, and the slurry runs through pipes into these basins. A factory producing 1,000 barrels daily requires at least four mixing basins of 500 barrels capacity each. As soon as a basin is three-quarters full, the mixture is made by testing the slurry every two hours and then grinding material either richer in clay or richer in lime and allowing it to run into the basin. The final adjustment can also be done by letting the slurry run from one basin into the other. The mixing basins are usually oval in shape; three stirrers run in each basin to keep the slurry in constant motion and mix it.

The slurry is then pumped by means of special pumps to small slurry bins over the kilns, and is burnt in the rotary kiln in exactly the same manner as dry material. The feed pipe to the kiln must be steep and wide, so that it does not choke. A difficulty with the burning is that the slurry is apt to roll together into large balls, which pass through the clinkering zone too quickly and do not get thoroughly burnt inside. These are called "runaways."

The kilns for the thick slurry process have in Germany generally a length of 122 to 148 feet, and are 7 feet 6 inches to 8 feet 2 inches diameter. Only the kilns in the Dyckerhoff works are longer—150 feet long and 9 feet in diameter. Otherwise they are exactly the same as kilns for the dry process. The clinker is just as hard as the clinker made from dry material, and there is no difference in the further process of manufacture. Last year I often heard the view expressed here in America that people in Germany were going over to the thick slurry process quite generally. This is a mistake. As I have already told you, there are at the present time in Germany only seven such works, and with all of these special reasons led to the introduction of the thick slurry process. Two of these works used the wet process from the beginning. At the moment only a single factory is altering its plant to the wet process, and from this you may see that the majority of the German cement makers still consider the dry process better, and in any case more economical. Only very special reasons, such as peculiarities of location or a naturally very wet raw material that could not be dried, have induced the German cement maker to introduce the thick slurry process in a few places, although three engineering works are already making wet mills, and on this account are, of course, advocating the wet process. The best German cements with the highest degrees of strength are still the cements made with the dry process, so the question of quality is no inducement to go over to the wet process. With proper attention just as good cement can be made in the dry way as in the wet, if the correct arrangements are made for a thorough mixing. Still there may be instances where the wet process is to be preferred to the dry, but such cases can only be decided separately after a thorough testing of the raw material. I will give you the points of view to be considered before deciding, especially in Germany, where fuel is very dear and forms a considerable part of the cost of manufacturing. In this respect the position in America may differ somewhat, as you have cheap coal and oil at your disposal for burning the cement. But if you can save only a few cents a barrel with the dry process compared with the wet process, then here, too, you must give the preference to the dry process of making cement.

The economy in burning cement in rotary kilns depends on the following four points: (1) Cost of the installation; (2) wages; (3) power consumption; (4) coal consumption.

The cost of plant is undoubtedly lower for the wet process, as various arrangements are not required which are necessary for the dry process. No rotary driers are required nor bins for ground raw material, the latter being substituted by the cheaper mixing basins. There is not required for the wet process the dust-collecting arrangements for the raw mill. The buildings for the dry process also take up rather more room. The opinion that with the wet process the kilns would have to be longer and larger has proved wrong, so that with the dry process the same cost of installation has to be taken into account for the kilns as with the wet process. However, the extra cost of a dry plant compared with a wet plant is not as much as might be assumed from the foregoing. It amounts to 3 to 5 per cent on the complete plant, and plays no great part when calculated on the barrel.

In America an important consideration is whether the wet process will reduce labor costs. According to the experience in Germany, this is not the case. As many people are required for attending to the wet grinding machines and the mixing basins as with the dry process for attending to the mills and ground materials bins. The power consumption of the mills is generally lower with the wet process, especially with materials which are not of a hard nature, such as marl, clay, chalk, etc. With such stuff the washing with water is effective and divides the material into its finest parts, so that the mills have little work to do. But it is a different thing if hard limestone and shale are to be ground wet, as the water is then of no assistance, and the mills have to do the same work as with the dry process. The economy in power is then very low and out of proportion to the higher coal consumption necessary to evaporate in the kiln the added water; and the higher the proportion of water in the slurry, the higher the coal consumption naturally is.

In judging the relative economy of the two systems, the main question is the coal consumption. Because, as the situation lies in Germany, coal is the chief factor in the actual cost of manufacture, amounting from one-third to one-half of same, according to price and other circumstances. Thus when making cement consideration must be given in the first place to saving coal.

Most of the factories with the thick slurry process work with a 40 per cent proportion of water. It depends on the nature of the raw material whether more or less water must be added. Occasionally slurry with 45 per cent water is still so stiff that it can hardly be pumped. There are works which burn even 55 per cent slurry in the rotary kilns.

With 55 per cent water there has to be evaporated 190 parts of water to 100 parts of finished cement, which is a very unfavorable ratio. With a thick slurry containing 40 per cent water the ratio is much better, but 104 parts of water have still to be evaporated to 100 parts of cement. It is clear that an increased expenditure of coal is necessary to burn cement out of a material containing so much water. Experience has shown that with the kilns mostly used in Germany, 115 to 148 feet long and 7 feet 2 inches to 8 feet 2 inches in diameter, the burning of a slurry containing 35 to 40 per cent moisture requires in round figures for every 100 kilos of cement 5 kilos more coal of medium quality than the burning of a slightly damped ground raw material, including the preliminary drying of material from the quarry with the average moisture in the pit.

The bill for fuel is therefore increased by fully 20 per cent with the wet process.

These figures thus result from the comparison of the burning of thick slurry and dry raw material in kilns of the same length and diameter, and after taking into account the amount of coal required by the dry process for drying the raw material before grinding. Besides this, the dry ground raw material was moistened with 8 to 10 per cent water before burning. All these are very unfavorable conditions for the dry process. In a properly managed kiln plant with the dry process the result will turn out much more unfavorable to the wet process than I have shown to you.

In the first place, it is not necessary to damp the raw meal with 8 to 10 per cent water when running it into the kiln. Some factories have long had a device which renders it possible to burn directly the dry meal, so that the fuel for evaporating this 8 to 10 per cent water can also be saved. There has also been left out of consideration the fact that with kilns 115 to 148 feet in length the waste heat, when burning thick slurry, only amounts to 250° centigrade, whereas with the dry process the waste heat has a temperature of 500° centigrade and over. As I have previously explained to you, this waste heat can be utilized for warming up the air of combustion in blast-heaters, or, better still, for raising steam in the boilers. On the other hand, when burning thick slurry the heat produced by the fuel is all used up in evaporating the water, so that the waste gases have a temperature of only 250° centigrade, and cannot be further utilized.

But it is precisely the utilization of the waste heat that enables further economies to be made, which I estimate very high if properly planned. The firm of Polysius, in Germany, which, as the first factory for the construction of rotary kilns, has much experience in this line, explained a year ago, through their Director Bruhn, the advantages of the dry process in a lecture given at the meeting of the German Portland Cement Makers, and the theories set forth coincide exactly with the statements made by me today. Dr. Bruhn also comes to the conclusion that the dry process is to be preferred to the wet process, unless the raw material has naturally more than 15 per cent moisture and by its softness is specially suitable for wet grinding and washing. This firm builds at the same time wet mills and kilns for thick slurry.

But Dr. Bruhn is not of my opinion that it is best to utilize the waste heat for the driers or boilers, as this makes the plant complicated, and he recommends building the kilns of such a length that all the heat is thoroughly utilized in the kiln itself in burning the raw meal, so that the waste gases have a temperature of only 250° centigrade. It was ascertained by experiments that to fulfil these conditions a kiln must have a length of 262 feet by 8 feet 2 inches diameter.

When the firm of Polysius now builds new works, it seeks to introduce these long kilns, which are said to reduce the coal consumption and to increase the output of the kiln.

However, the wet preparation has in any case several advantages, the principal of which is that the plant is much simpler with wet grinding, and the adjustment of the proper mixture is easier with thick



LOADING THE CARS BY PIPE.

slurry than with raw meal. Any mistakes can be corrected without difficulty in the mixing basins. But I do not mean to say that on this account the quality of cement burnt from thick slurry is better than that made from raw meal. With the employment of proper mixing arrangements and with care the same uniformity and accuracy in the composition of the raw meal can be attained with the dry process. When this is not the case, it is not the method but the arrangements that are at fault.

The disadvantage of the thick slurry process is thus undoubtedly in the extra expenditure in fuel and the increased cost of manufacture caused thereby, which will become the more palpable in comparison with the dry process when the burning of dry meal and the utilization of the waste heat are properly understood.

On the other hand, the thick slurry plant has some advantages which may be briefly stated as follows: (1) Smaller capital investment in the installation. (2) Little dust. (3) The possibility of proper adjustment of the mixture without difficulty. (4) A simpler plant and fewer conveyors. (5) Saving of power in wet grinding.

The saving in power is very small, however, and is not nearly compensated for by the larger expenditure in coal required for the burning of the thick slurry, and it would not be right, therefore, to give the wet process the preference over the dry on account of the saving in power. Dr. Bruhn gave in his lecture last year the following explanations, which will show you the position clearly: "With our steam engines of today 0.7 k'lo of medium quality coal is sufficient to produce 1 horse-power-hour. With kilns of equal length, 5 kilos less coal per 100 kilos clinker are used when burning raw meal than when burning slurry containing 35 to 40 per cent water. These 5 kilos of coal are thus equal to 7 horse-power-hours. With a production of 10,000 kilos per hour, equal to 300,000 barrels per year, this higher consumption of fuel in the thick slurry kiln is equivalent to a constant higher expenditure of 700 piston-stroke per hour. But the whole plant for this production only requires some 300 to 400 horse-power for crushing, drying, and grinding the raw meal."

Gentlemen, I can only confirm this from the experience made by a company to which I formerly belonged, and which altered one of its works to the thick slurry system. The factory in question works at much greater cost than the other factories with the dry process.

It is very difficult to give a general opinion as to whether the dry process or the wet process is more advantageous. Where emphasis is placed on having a plant as simple as possible, and that can be easily supervised, or where there are difficulties in attaining a good mixing with the dry method, in such cases the wet process is perhaps suitable, even if the raw material is naturally hard and not too damp. But in any case it must be taken into account that the cost of manufacture will be considerably higher than if the same material were worked dry. The method of making is certainly simple and easy, but it costs more.

It is somewhat different if the materials are naturally soft or impure and contain much moisture, so as to render the drying difficult. In such a case the wet process would be preferable. As far as I had the opportunity of examining the raw materials used in America for making cement, I am convinced that most of them are more suitable for the dry process than for the wet process.

I have already mentioned that a cement works in Germany is now about to change from the dry process to the wet; the reasons are that the factory in question has to work a clay containing 15 per cent moisture, and adds 12 per cent water to the raw meal before it runs into the kiln. Under such circumstances the superintendent said that it did not matter so much whether he added a further 10 per cent water and introduced the thick slurry system, especially as he was never able to dry the clay properly. But I know of another works which is at present making alterations, but is retaining the dry system, although the clay contains nearly 20 per cent water. The works in question has constructed for itself a special cylinder drier with coal-dust firing, and as they know how to burn the raw meal dry, I do not doubt that this factory will manufacture cheaper than the other factory with the thick slurry system. You see, gentlemen, that also in Germany the question as to whether the wet or dry process is better has not been sufficiently cleared up. My personal view is that wet preparation should only be chosen if the raw materials are not hard or plastic, and if the natural proportion of moisture already approaches that necessary for wet working. I consider it a mistake to work hard, dry material according to the wet process simply for the purpose of facilitating the mixing or of avoiding the dust. For to solve both these problems it is not necessary to introduce the more expensive wet process; it can be done just as well with the dry process.

I hear that a factory is being changed in America to the wet system, and it will then be seen whether the wet system is preferable for your country, which is not impossible, as fuel does not play such a large part in the cost of manufacturing as with us in Germany.

RELATION OF CEMENT.

By Charles L. Johnson.

The following paper was read by Charles L. Johnson, the general sales manager of the Great Western Portland Cement Company, before the members of the Texas Lumbermen's Association at Houston, Texas, recently. The paper was well received and was the subject of much discussion:

Mr. President and Members of the Texas Lumbermen's Association: The speaker feels highly honored to be called upon at this occasion to speak to you on the relation of the manufacturer of Portland cement to the dealer in building materials. It has been many years since the cement industry has been called upon to speak for itself in a matter of this kind before this organization.

For the past eighteen years I have carefully watched the situation from the standpoint of a manufacturer and a salesman, and can safely say that the relations between the dealer and manufacturer are today more congenial and more satisfactory than ever before in the history of this country.

Eighteen years ago but very little Portland cement was manufactured in the United States, most of it coming from abroad. For years most of the cement used in Texas was manufactured abroad and came by the way of Galveston. Later on the cement industry branched out into the Kansas field, and gradually they captured a great deal of the trade which had formerly gone to the importers at Galveston. Of course this was very natural, as Americans are always loyal to their own industries. But don't forget one fact—a very few of you know that here in this state of Texas the Alamo Portland Cement Company of San Antonio, Texas, is the oldest manufacturing concern of Portland cement west of the Alleghanies. This plant started in 1879 and has been in continuous operation ever since; in other words, for the past thirty-one years. The gentlemen who manufacture this cement are very modest in their assertions, but nevertheless they have been located here in your state for over a quarter of a century, and have marketed every barrel that they could manufacture.

Some ten years ago Dallas was selected as the site for a Portland cement plant, which, as you well know, has met with great success. This was followed later on by another mill at the same point, with equal success.

Following the erection of the two plants at Dallas, El Paso was selected as a site for a Portland cement mill, and today it is in full operation—in fact, has been for the past year.

Northward in Oklahoma we find two Portland cement plants. In the Kansas field are fourteen, and going still further north, Iowa, Montana and Idaho have plants of their own. In fact, you will find that twenty-six states in this Union claim to have 115 Portland cement plants, and last year the production was 73,500,000 barrels.

When Mr. Baumberger started his little plant, in 1880, at San Antonio, but 42,000 barrels were manufactured in that year, so you can readily appreciate how rapidly the use of cement is being developed in this country. Of course, the most rapid strides have been during the past ten years, for in 1900 8,500,000 barrels were manufactured, against the 73,500,000 barrels of last year, an increase of 860 per cent. There is abundant reason to believe that the use of cement will show a tremendous increase for years to come, until the consumption ten years hence will be astonishingly large compared with the amount used at the present time. In other words, the Portland cement industry is in its infancy. The campaign of education inaugurated a few years ago by manufacturers and construction companies directly interested in promoting the use of cement has not only borne fruit, but has been supplemented by the valuable assistance of interests heretofore indifferent in the matter. For example, the great steel interests have realized that increased use of cement means increased demand for their own product. Then some of the clay interests realize the mistake that has been made by wanting to retard the use of concrete. The United States government, through the department of agriculture and geological survey, is doing much to educate the public by the circulation of cement literature, to say nothing of the practical examples of concrete construction established by the army and navy engineers.

There is one problem, nevertheless, that has never been settled, and that is about the profits that the dealers should make in handling Portland cement. It is a problem, and only the dealers can solve it. The Portland cement manufacturers are handling their entire output today through the dealers, as a rule. In fact, the contractors would a great deal rather do their business through the dealers, for the dealer must act as his banker in the majority of cases, for the manufacturer has to receive his money for the cement promptly.

A dealer is a man who maintains a warehouse in which he keeps a full supply of building material ready to supply the demand of the public at a minute's notice. He has to have horses and wagons to do his teaming; he has to have bookkeepers to take care of his books; he has to have collectors to go out to collect bills; he has to have a warehouse man and the general help hired around the warehouse. How any manufacturer can fail to recognize the dealer is beyond my reasoning power. He has made the manufacturer what he is today in spite of the fact that you hear some of the manufacturers say that the dealer is always trying to get the best of it. But tell me how long the manufacturer would live, or exist, without the co-operation of the dealer. He has to pay his bills promptly in thirty days and carry the accounts of his customers from ninety days to a year. The great difficulty that the dealer has to contend with is the fact that he has to handle his cement on a very narrow margin of profit, and carries it as a matter of convenience—you can not blame the dealers for getting discouraged and blue.

When any big job comes up in a town every manufacturer has his representative there to take care of his interests and these representatives are not there for their health. Somebody has to get the order, and before they leave the town some dealer has been presented with the order and the chance to make 5 or 6 cents a barrel, carry the account, return the sacks and in other words carry the bag throughout the entire game. It would be much better for the manufacturer to let the dealers fight out their battle and secure a legitimate margin of profit and keep off the dogs of war just as long as possible.

At a letting in Oklahoma City a few weeks ago there were twenty-one representatives of manufacturers of Portland cement registered at one hotel. Take and figure out the enormous expense of this, and only one of the manufacturers secured the order.

The manufacturers make just as many mistakes as the dealers, without any question.

In speaking of small margins of profit and return of sacks you have struck a problem, which I don't believe any of you can solve, unless it be that somebody invents a sack that is not returnable, and then charge the consumer for it. In the older days you had to pay 30 to 40 cents for cooperage and no one thought anything about paying for cooperage, but now they figure that they buy their cement in bulk and don't have to pay anything for sacks. You will find the cement manufacturers today are quoting you, not on bulk cement, but on the cement in the package, and if you return the sacks in good condition they are very glad to purchase the sacks back from you, provided you pay the freight on them back to the plant and they are received in good condition.

A dealer buys 100 barrels of cement, which means 400 sacks. He send them out to his various customers who in turn send the sacks back to him. He finally bunches up the 400 sacks and returns them to the plant and receives a credit memorandum for 375 good sacks, twenty torn and damaged beyond repair and five sacks missing. This, of course, is just merely a case illustrating the situation. Now, he on his part is absolutely positive that he returned 400 sacks, while the manufacturer is equally positive that his count is correct. The dealer comes back at the manufacturer by stating that the sacks were received in poor condition and that the five sacks must have been lost in transit. Now complaints of this kind come up every day in the week with every manufacturer, and if anyone can suggest a plan whereby we will do away with the kicks and complaints on sacks, he certainly will make himself wealthy for life, because the cement manufacturers have tried everything under the sun to prevent disputes.

The paper sack is used largely through the central states, that is Ohio, Indiana, Illinois and Michigan, but, of course, the paper sack does not admit of a large amount of handling, and here in Texas you naturally have to send cement long distances over rough roads and paper would not be an attractive proposition.

There is so much to say on this sack problem that it would take days and weeks to fully discuss it, and then we would not reach any better understanding than at the end of a ten minutes argument. I have been in meetings of cement manufacturers for three days at a stretch in which nothing but the sack problem was talked over, and at the end of every session it wound up with a fight. One man suggested that they send the sacks out at 10 cents and credit them back at 7½ cents, which would be the thing. After discussing it off and on at various meetings for six months one of the plants adopted it and the other plants followed suit for a couple of years, and today you will find in the East that is the only way they ship cement—on a basis of 10 cents for each sack going out and crediting back the dealer at 7½ cents, and I don't know but what it is the only way out of the problem.

Our good friend, Mr. Rockwell, suggested that I talk to you on the sack situation, but I rather hesitated to do so, informing him if he would furnish me with a cage for protection and a couple of policemen to keep the mob off I would try to give them some facts, for I know exactly how you dealers feel about the whole proposition. Now, just one more word regarding dealers. I believe if you would ask the Portland cement manufacturers of this vicinity, that is the western field as far north as Kansas, to co-operate with you on various lines it would be to your benefit. I don't mean any agreements or anything of that kind, for it is against the law and it would not be right, but I mean to invite the Portland cement manufacturers to attend your meetings and to take up matters with them of mutual interest, and in that way you will solve many problems. I believe it would be a good idea some time in the near future for your organization to meet at some one of the mill towns in this state and visit the plant and learn something about the manufacture of cement and then go over to their shipping department and watch the returned sacks coming in from the station and the loading of the cars. You could give the manufacturers many valuable points. Last year you were in San Antonio, but you did not avail yourself of the opportunity of going to their plant, but should you meet in El Paso or at Dallas in the next year or so, you certainly will be able to learn a good deal, as stated above, of the manufacture and shipping of cement from the plants.

It has been a matter of surprise with competing interests to note the rapid growth of the concrete industry and they profess not to understand how concrete has gotten into such universal use in comparatively so few years. The explanation is simple, however, when we consider the relation of cement to other industries. For example, there has been a rapid decline in the lime industry. While the superior character of cement mortar is directly responsible for the substitution of cement for lime, the demand for cement comes from the bricklayers, whose industry would be to all sorts of disadvantage were it not for Portland cement.

In the matter of steel, the Iron Age, which speaks with authority for that industry, has come to the conclusion that the use of reinforced concrete has been a decided benefit to the steel industry.

As to lumber, we find recognition to the cerits of concrete, and as an example, there may be cited the construction at Sheffield, Pa., of a reinforced concrete sawmill. The use of concrete was due to the company's desire to escape the fire risk which surrounds the wooden saw mill. Statistics show that a saw mill of timber can not average more than seven years' life without destruction by fire.

The lumber industry recognizes the fact that Portland cement has been a big assistance to them instead of a detriment, as form work in reinforced concrete construction requires a large amount of lumber of one kind or another. Take the reinforced concrete buildings here in Houston, Dallas, San Antonio, Waco, Fort Worth and the other cities of the state, goes to demonstrate the large amount of lumber consumed in these structures. The country is building up so rapidly that Portland cement is just as necessary in the construction of houses as lumber. All that the manufacturers ask is that strict co-operation exist to the fullest extent between the dealers and themselves, and this can only be done by getting closely together and by inviting the manufacturers to send their representatives to your meetings, because your interests in many ways are mutual.

At your meeting in San Antonio the question was put up by several of the large dealers to the manufacturers, or, rather to their representatives, what their attitude was in reference to inquiries of consumers to the manufacturers, and the speaker expressed himself that there was but one way to handle the whole proposition, and that was by referring the inquiry to the dealer and let the dealer name his own price—and he believes today that it is the only way to handle Portland cement, and that is strictly through the dealer and let the dealer sell it and not interfere with his sales.

Again I desire to thank you for the opportunity of addressing this organization; I did not intend to take up so much of your valuable time, but the subject is one of great interest to both the manufacturers and the dealers. At some later date I trust we will be able to meet again and go over other matters of mutual interest.

The Dower-Finkle Construction Company, of Roselle Park, N. J., has been incorporated with a capital stock of $50,000 to carry on a building and contracting business. The incorporators are W. D. Finkle, J. E. Dower, W. A. Pohl and J. G. Heffer-man, all of Roselle Park, N. J.

The Wells Construction Company, of Manhattan, has been incorporated with a capital stock of $100,000 to do a general building contracting business. The incorporators are J. E. Wells, W. A. Wells and W. R. Reed, all of New York City.

The Eau Claire Concrete Company, Eau Claire, Wis., is erecting a new plant which will enable the company to greatly increase its output.



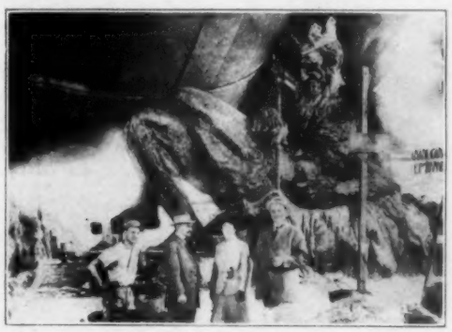
KING NEPTUNE.

A Giant Plaster Float Reinforced with Wooden Supports at World's Fair Celebration.

San Diego, Cal., was to have a ground-breaking carnival celebration in connection with the proposed Fair in 1915. Floats of all kinds were planned when a young artist and sculptor of San Diego, C. C. Cristadoro, submitted a four foot model of a float, jointly designed by Mr. Schwartz and himself, of King Neptune viewing the marriage of the Atlantic and the Pacific, the completion of the Panama Canal. Objection was made to the placing of a 24 foot figure made out of either solid plaster or reinforced cement (because of its weight), as a float upon an ordinary truck. The problem was up to Mr. Cristadoro to solve. He produced a four-foot model which, when submitted, met the approval of all concerned. He was instructed then to proceed in his own way.

Procuring timber and the assistance of a carpenter, the rough, crude skeleton of the figure was framed up, great care being taken to keep accurately to the 6 to 1 proportions and measurements of the model. Roughly put together as the timbers were, they yet were so arranged as to conform as closely as possible to the outline of the proposed figure. The framework securely knitted, closer conformation to the human form was secured by wrapping the framework with excelsior and then sheathing that with sheets of metal lath, well secured to the framework. This being malleable, by the judicious use of a mallet the figure by this time was so coated with flesh as it were as to really begin to look humanlike.

Now came the putting on of the skin and the bringing of the figure to life. Plaster was now



SCULPTOR CRISTADORO AT WORK BRONZING THE FIGURE NEPTUNE.

brought into play and same was judiciously combined with oakum, giving the mass a fibrous tenaciousness that, when laid upon the open interstices of the steel lath, gave it a holding power that defied peeling or cracking to a high degree. This guaranteed the stability of the work against the jarring and jolting it would receive when the float moved over the car tracks and thank-you-marms in the road.

The fibrous plaster, sunk into the lath and set, gave a fixed surface durable in the extreme, and allowing of manipulation of any kind until finally fixed and set.

The figure is 24 feet; the head about 3 feet long; across the shoulders 6½ feet; from heel to toe 3½ feet; the upper arm about 20 inches in diameter and from knee to heel 7 feet. The city of San Francisco is contemplating the erection of a 300 or 400 foot statue of reinforced cement, the same to stand guard over the bay and perhaps, like the Bartholdi statue, illuminate the sea for miles around. The small model made and the larger statue built on scale proportions would necessarily follow to perfection.

The interior framework being so solidly built, the sheathing of the timber in metal lath, the fibered plaster securely embedded in the lath and the whole painted, gives it a permanency that may cause it to last for a few years, and rather than send the figure the way of all carnival floats, to the rubbish heap, it is proposed to place it in the city park until such time as the elements may make it advisable to destroy it.

PITTSBURGH PLASTER VIEWS.

Pittsburgh, August 18.—Plaster men are somewhat encouraged. More fall building is appearing on the boards than was anticipated. Several big structures, including a proposed 20-story addition to the First National Bank building and the $1,500,000 Pittsburgh City Hall, are likely to be on the boards for figures this fall, as are the Oliver hotel and the hotel to be erected at Penn avenue and Seventh street. Fine residence work also looks a little better. More public buildings have been let within the past two months than for a long time previous and many are being hustled along toward the contract stage now, as it is believed that owing to the hard times lower bids can be secured this year than next.

The Kelly Plaster Company, of Butler, Pa., has awarded the contract for grinding machinery to the Sturtevant Mill Company, of Boston, through its Pittsburgh representative, Walter S. King.

The Colonial Wall Board & Plaster Company, from its offices in the Frick building, reports a picking up in business that is quite noticeable. Shipments were better in July with this company than for a long time. Demand from Pennsylvania towns as well as from the middle west is encouraging.

The Clydesdale Limestone Company is turning out a large amount of the material used in paving streets and roads in Allegheny at its plant near Ellwood City, Pa. It has a new process and is guaranteed to be waterproof.

Jacob Zerfley and Jacob Singer, of Mineral City, Ohio, have completed a new limestone plant at Zoar, Ohio, which will have an output of five tons per day.

PLASTER TRADE GOOD.

In a recent communication received from H. B. Webster, manager of the Peoria Builders' Supply Company, Peoria, Ill., he reviewed conditions as follows: "Business has been a little quiet here in Peoria, but is looking up. We have several big jobs coming up, among which is the new Jefferson Hotel, which will be one of the finest in the state when completed. The Peoria Builders' Supply Company will supply the 400 tons of plaster that goes into it.

"We handle Lehigh, Medusa and Owl Portlands. The United States Gypsum Company's plasters have a good trade on sackett plaster board, metal lath and pyrobar block partitions for fireproof buildings. One of our specialties is exterior plaster, and we cover all the buildings in this city that are plastered outside, and the majority of the fine homes here are specified adamant exterior, either float or rough cast finishes.

"We do quite a little jobbing business in a small way among the smaller towns in our vicinity, and make a specialty of quick shipments, sending out plaster, lime and cement the day that we receive order, and ship out lots of stuff in mixed carloads, a good many dealers preferring to buy their material that way, especially during the summer months when the hot weather affects lime, plaster, etc.

"We thank you for your interest and will reciprocate where we can, boosting ROCK PRODUCTS all the time."

LOUISVILLE PLASTER NEWS.

Louisville, Ky., August 15.—Because of the fact that residence, school and commercial building has been so active in this city during the past several months, the middle of August finds the wall plaster interests in a very prosperous condition. There is a big quota of structural work, out of the general immense quantity, which is in the last stages of completion, ready for the plastering, at present, so that every company in Louisville is getting all that is coming to it. The outlook is just as good as present conditions are and several local plants are to be improved and extended to accommodate growing business.

The Kentucky Wall Plaster Company, according to the report of B. J. Campbell to Rock Products, is doing about as much business as it possibly could do at present. The Kentucky plant is handling a big job on the interior of the new $35,000 church of St. Charles Borromeo at Twenty-seventh and Chestnut streets, and has been rushing along the Tyler Hotel job, which called for interior finish on eight floors of hotel, sample and dining rooms. With the numerous fine contracts that there are in prospect, Mr. Campbell says he cannot see a cloud on the commercial horizon for the rest of the summer and probably throughout fall. The Kentucky Wall Plaster Company is doing some educational exploitation of Louisville wood fiber plaster in local dailies.

"Since August 1 business has been growing steadily better and there is no telling when the turning point will be reached," said William Selke, of the Atlas Wall Plaster Company. The Atlas company is planning to make some extensions this fall in the way of a 2-story warehouse addition.

BUILDING WITH ADOBE.

For generations adobe has been a favorite building material in parts of the West, where the climate is dry, particularly in New Mexico, Arizona and Utah. The Pueblos used it in their hillside homes long before the coming of the white man.



MIXING ADOBE FOR BRICKS.

The latter soon learned its advantages and used it to construct his own home. The old Mormon temple at Salt Lake City was built of adobe and the Mexicans use it for every class of structure, including their churches.

The word is pronounced as though it were spelled "doby," and the material itself is simply the common clay of the country, mixed with water and made more cohesive by the use of straw, although the latter is sometimes omitted. It is mixed on a board, as one of the illustrations shows, then moulded into bricks, which are often a foot long, and dried in the sun. These bricks often require a week to dry and if, in the meantime, a heavy rain comes on, they are speedily reduced to mud again, unless protected. Many weeks may elapse without a drop of water falling, but the risk is sufficient to cause the brickmakers to cover the bricks with boards when a large number are being dried.

When the bricks are in place finally, they constitute a wall which is practically solid and able to withstand the attacks of the elements for centuries. The buildings are usually roofed with some other material—wood, burned brick or iron.

A house built of adobe is well-suited to the climate and decidedly comfortable. It is warm in winter and impervious to the hardest winds. If built with a single wall, it may be rather warm the first part of the night in summer, the walls cooling off slowly, but if made with double walls, and an air space between, it is delightfully cool in the hottest weather, changes in temperature having but little effect upon it.

While adobe is generally called the poor man's building material, it is not so cheap when finally laid as one might suppose, considering that it is simply mud mixed on the spot. The labor of preparing it is considerable and the length of time which must be devoted to the work is considered by many white men a great disadvantage, although that fact does not concern the Indians. Of course, adobe bricks cannot be made or used during a rainy season, as the walls would simply go down in mud.



MAKING ADOBE BRICKS.

In a number of instances ambitious builders have seen their partly finished adobes go to pieces before their eyes in a very short time. A rain is worse than a fire, so far as the adobe builder is concerned.

Oftentimes the walls are plastered over, an easy task, simply involving the mixing of a little mud into mortar, in which form it is applied.

STANDARDIZING PAVING PLANS

The Association Organized For the Purpose Makes a Report of Its Findings at Its Second Annual Meeting.

There has been so much interest manifested by our readers in the specifications as promulgated by the Association for Standardizing Paving Specifications that we have secured permission from John B. Hittell, the secretary-treasurer of the organization, to publish them.

"By permission of the Association these extracts are reprinted from the copyrighted proceedings of the Association for Standardizing Paving Specifications. John B. Hittell, secretary-treasurer, 5917 Winthrop avenue, Chicago."

We reprint herewith the committee's report on cement, concrete and concrete pavements.

Other specifications will be published later.

Cement, Concrete and Concrete Pavements.

The committee on cement, concrete and concrete pavements reported five sets of specifications as follows: Cement; concrete sidewalks; concrete curb and combined curb and gutter; concrete for pavement foundations; concrete pavements. The specifications as drawn by the committee were accepted.

Specifications for Cement.

Cement.—The cement shall meet the requirements of the standard specifications for Portland cement of the American Society for Testing Materials, adopted August 16, 1909, with Section 21 of said specifications amended to read as follows:

Tensile Strength.—The minimum requirements for tensile strength for briquettes one square inch in cross section shall be as follows, and the cement shall show no retrogression in strength within the period specified:

NEAT CEMENT.

Age.	Strength.
24 hours in moist air	175 lbs.
7 days (1 day in moist air, 6 days in water)	500 lbs.
28 days (1 day in moist air, 27 days in water)	600 lbs.

Provided, however, if the cement fails to meet the requirements of the 24-hour neat test, it may, at the discretion of the engineer, be held for further tests before being rejected.

ONE PART CEMENT, THREE PARTS STANDARD OTTAWA SAND.

Age.	Strength.
7 days (1 day in moist air, 6 days in water)	200 lbs.
28 days (1 day in moist air, 27 days in water)	275 lbs.

But in no case shall the increase in strength at 28 days be less than 20 per cent. over the strength shown at seven days.

Specifications for Concrete Sidewalks.

Cement.—(The specification for cement is the same as previously given.—Ed.)

Fine Aggregate.—The fine aggregate shall consist of any material of siliceous, granitic or igneous origin, free from mica in excess of five (5) per cent. and other impurities, and shall be of graded sizes ranging from ⅛-in. down to that which will be retained on a No. 80 standard sieve for the top or wearing surface; and from ¼-in. down to that which will pass a No. 100 standard sieve for the base.

Coarse Aggregate.—The coarse aggregate shall be sound gravel, broken stone or slag having a specific gravity of not less than 2.6. It shall be free from all foreign matter, uniformly graded and of sizes that will pass a 1-in. screen and be retained on a ¼-in. screen.

Water.—The water used in mixing the concrete shall be clean, free from oil, acid, strong alkalies or vegetable matter.

Base Proportions.—In preparing the concrete for the base, the cement and aggregate shall be measured separately, and then mixed in such proportions that the resulting concrete shall contain fine aggregate amounting to one-half (½) of the volume of the coarse aggregate; and that 5½ cu. ft. of concrete in place will contain 94 pounds of cement.

Thickness.—The base shall be —— inches in thickness, with its upper surface finished parallel to and —— inch below the grade of the finished sidewalk. The minimum thickness for base shall be 3 inches.

Mixing.—The ingredients of the concrete shall be thoroughly mixed, sufficient water being added to obtain the desired consistency, and the mixing continued until the materials are uniformly distributed and each particle of the fine aggregate is thoroughly coated with cement, and each particle of the coarse aggregate is thoroughly coated with mortar.

Where a mechanical concrete mixer is used, the materials must be proportioned dry, and then deposited in the mixer all at the same time. The mixer must produce a concrete of uniform consistency and color, with the stones thoroughly mixed with the water, sand and cement.

Consistency.—The materials shall be mixed to produce a concrete of such consistency that the water will flush to the surface under heavy tamping.

Retempering.—Retempering, that is, remixing with additional water, mortar or concrete that has partially hardened, will not be permitted.

Forms.—The forms shall be smooth, free from warp, of sufficient strength to resist springing out of shape, and of depth to conform to the thickness of the proposed walk.

All mortar and dirt shall be removed from forms that have been previously used.

The forms shall be well staked and thoroughly braced and set to the established lines, their upper edges conforming to the grade of the finished walk, which shall have sufficient fall from the lot line toward the curb line to provide for drainage, but shall not exceed ¾-in. per foot.

The base shall be blocked out in sections which shall not measure more than six feet in any dimension.

The cross forms shall be of ¼-in. metal, of a depth to correspond to the thickness of the proposed walk, and shall extend the full width of the walk and be set at right angles to the side forms. They shall be left in place until the wearing surface is floated.

Placing Concrete.—The concrete shall be deposited in a layer on the subgrade in such quantities that, after being thoroughly rammed in place, it will be of the required thickness, and the upper surface shall be true, uniform and parallel with the surface of the finished sidewalk.

In conveying the concrete from the place of mixing to the place of deposit, the operation must be conducted in such a manner that no mortar will be lost and the concrete must be so handled that the foundation will be of uniform composition throughout, showing no excess nor lack of mortar in any place.

Top of Wearing Surface.—The top or wearing surface shall be composed of one part Portland cement and two parts fine aggregate, mixed with sufficient water to produce a mortar of a consistency which will not require tamping, and which can be easily spread into position with a straightedge.

The mortar for wearing surface shall be mixed in a mortar box and spread on the base immediately after mixing. In no case shall the wearing surface be placed after the base has set.

After the wearing surface has been worked to an approximately true plane, the slab marking shall be made directly over the joint in the base. Such marking shall be made with a tool which will cut entirely through and completely separate the surface of adjacent slabs.

Thickness.—This wearing surface shall be —— inch in thickness.

The minimum thickness for wearing surface shall be one-half (½) inch.

Edges.—The slabs shall be rounded on all surface edges to a radius of about ⅛ inch.

Troweling.—The surface shall be troweled smooth. The application of neat cement to the surface in order to hasten hardening is prohibited.

Protection.—When completed, the walk shall be kept moist and protected from traffic and the elements for at least three days.

Freezing Temperature.—No concrete shall be mixed while the air temperature is below 32 degrees F., and if this temperature is reached at any time before the wearing surface is laid, the foundation or other concrete shall be immediately provided with such covering as will protect it from all damage.

In no event shall concrete walks be laid on a frozen foundation.

Specifications for Concrete Curb and Combined Curb and Gutter.

Cement.—(The specification for cement is the same as previously given.—Ed.)

Fine Aggregate.—The fine aggregate shall consist of any material of siliceous, granitic or igneous origin, free from mica in excess of five (5) per cent and other impurities, and shall be of graded sizes, ranging from ⅛-in. down to that which will be retained on a No. 80 standard sieve for the top or wearing surface; and from ¼-in. down to that which will pass a No. 100 standard sieve for the base.

Coarse Aggregate.—The coarse aggregate shall be sound gravel, broken stone or slag having specific gravity of not less than 2.6. It shall be free from all foreign matter, uniformly graded and of sizes that will pass a 1-in. screen and be retained on a ¼-in. screen.

Water.—The water used in mixing the concrete shall be clean, free from oil, acid, strong alkalies or vegetable matter.

Base Proportions.—In preparing the concrete for the base, the cement and aggregate shall be measured separately, and then mixed in such proportions that the resulting concrete shall contain fine aggregate amounting to one-half of the volume of the coarse aggregate; and that 5½ cu. ft. of concrete in place will contain 94 pounds of cement.

Dimension.—The curb or combined curb and gutter shall conform to the plans for same attached. The curbings shall be —— inches thick by —— inches deep. Curb and gutter shall show a curb —— inch thick, with face as shown on plans. The gutter shall be —— inches wide and —— inches thick, and due allowance shall be made in placing to allow for the facing or wearing surface, which shall be —— inch thick, as hereinafter stated. The minimum thickness of a curb shall be 5 inches. The minimum thickness of a gutter shall be 5 inches.

Mixing.—The ingredients of the concrete shall be thoroughly mixed, sufficient water being added to obtain the desired consistency, and the mixing continued until the materials are uniformly distributed and each particle of the fine aggregate is thoroughly coated with cement and each particle of the coarse aggregate is thoroughly coated with mortar.

Where a mechanical concrete mixer is used, the materials must be proportioned dry and then deposited in the mixer all at the same time. The mixer must produce a concrete of uniform consistency and color, with the stones thoroughly mixed with the water, sand and cement.

Consistency.—The materials shall be mixed to produce a concrete of such consistency that the water will flush to the surface under heavy tamping.

Retempering.—Retempering, that is, remixing with additional water, mortar or concrete that has partially hardened, will not be permitted.

Forms.—The forms shall be smooth, free from warp, of sufficient strength to resist springing out of shape, and of a depth to conform to the depth of the proposed work.

Mortar and dirt shall be removed from forms that have been previously used.

The forms shall be well staked and thoroughly braced and set to the established lines, their upper edge conforming to the grade of the finished curb.

The work shall be blocked out in sections which shall not measure more than six feet in length.

The cross forms shall be of ¼-in. metal, of a depth to correspond to the depth of the proposed work, and shall extend the full width of the work. They shall be left in place until the wearing surface is floated.

Wood forms shall be moistened before the concrete is placed.

Placing Concrete.—The concrete shall be deposited in the forms and tamped in place, so that the upper surface shall be true, uniform and parallel with the surface of the finished work.

In conveying the concrete from the place of mixing to the place of deposit, the operation must be conducted in such a manner that no mortar will be lost and the concrete must be so handled that the foundation will be of uniform composition throughout, showing no excess nor lack of mortar in any place.

Facing or Wearing Surface.—The facing or wearing surface shall be composed of one part Portland cement and two parts fine aggregate, mixed with sufficient water to produce mortar of a consistency which will not require tamping, and which can be easily spread into position with a straight edge.

The mortar for the facing shall be mixed in a mortar box and spread in place immediately after mixing. The facing or wearing surface of the curb shall be placed on the inside of the forms as the body of the curb is being built up. In no case shall the facing be placed after the base has set.

ly true plane, the section marking shall be made directly over the joint in the base. Such marking shall be made with a tool which will cut entirely through and completely separate the surface of adjacent sections.

Thickness.—This facing or wearing surface shall be —— inch thick.

The minimum thickness of the wearing surface shall be ½ inch.

Troweling.—The surface shall be troweled smooth. The application of neat cement to the surface in order to hasten hardening is prohibited.

Protection.—When completed the work shall be kept moist for four days, and protected from traffic and the elements for at least ten days.

Freezing Temperature.—No concrete shall be mixed when the air temperature is below 32 degrees F., and if this temperature is reached at any time before the wearing surface is laid, the foundation or other concrete shall be immediately provided with such covering as will protect it from damage.

In no event shall a concrete curb or curb and gutter be laid on a frozen foundation.

Curb and Gutter Not Built in Place.—Where built at a point removed from the work, they shall be constructed in the same manner and of the same materials as above specified and shall be allowed to harden for at least ten days before being transported to their position in the work. The length of any section shall not be less than four (4) feet nor more than six (6) feet.

Your committee advises this method of construction in preference to the construction of the curb built in place.

Specifications for Concrete for Pavement Foundations.

Cement.—(The specification for cement is the same as previously given.—Ed.)

Fine Aggregate.—Thefine aggregate shall consist of any material of siliceous origin, free from mica in excess of 5 per cent, and other impurities, uniformly graded, the particles ranging in size from ¼-in. to that which will pass a No. 100 standard sieve.

Coarse Aggregate.—The coarse aggregate shall be sound gravel, broken stone or slag, having a specific gravity of not less than 2.6. It shall be free from all foreign matter, uniformly graded, and shall range in size from ¼-in. up, the largest particles not to exceed in any dimension one-half the thickness of the concrete in place.

Proportions.—In preparing the concrete, the cement and aggregate shall be measured separately and then mixed in such proportions that the resulting concrete shall contain fine aggregate amounting to one-half of the volume of the coarse aggregate; and that 7 cu. ft. of concrete in place will contain 94 pounds of cement.

Mixing.—The ingredients of the concrete shall be thoroughly mixed, sufficient water being added to obtain the desired consistency, and the mixing continued until the materials are uniformly distributed, and each particle of the fine aggregate is thoroughly coated with cement, and each particle of the coarse aggregate is thoroughly coated with mortar.

Where a mechanical concrete mixer is used, the materials must be proportioned dry, and then deposited in the mixer all at the same time. The mixer must produce a concrete of uniform consistency and color, with the stones thoroughly mixed with the water, sand and cement.

Consistency.—The materials shall be mixed wet enough to produce a concrete of a consistency that will flush readily under light tamping, but which can be handled without causing a separation of the coarse aggregate from the mortar.

Retempering.—Retempering, that is, remixing with additional water, mortar or concrete that has partially hardened, will not be permitted.

Placing Concrete.—The concrete shall be deposited in a layer on the subgrade in such quantities that after being thoroughly rammed in place, it will be of the required thickness, and the upper surface shall be true, uniform and parallel with the surface of the finished pavement.

In conveying the concrete from the place of mixing to the place of deposit, the operation must be conducted in such a manner that no mortar will be lost and the concrete must be so handled that the foundation will be of uniform composition throughout, showing no excess nor lack of mortar in any place.

Thickness.—This foundation shall be —— inches in thickness, with its upper surface finished parallel to and —— inches below the grade of the finished pavement.

The minimum thickness for a concrete foundation shall be 4 inches.

Protection.—When complete, the foundation shall be kept moist for not less than 2 days, and it shall be protected from traffic until the concrete has thoroughly set.

Freezing Temperature.—No concrete shall be mixed while the air temperature is below 32 degrees F., and if this temperature is reached at any time before the foundation shall have been thoroughly set, it shall be immediately provided with such covering as will protect it from all damage.

In no event shall a concrete foundation be laid on a frozen subgrade.

(To be continued next month.)



NORMAN D. FRASER

CHICAGO, ILL.

Lime

The National Lime Manufacturers' Association

Meets Semi-Annually.

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INTERNATIONAL

Lime Company in State of Washington Equipped With a Hydrating Plant By the Kritzer Company of Chicago.



GENERAL VIEW OF INTERNATIONAL PLANT.

Poets and nature lovers place among the immortals the man who makes one blade of grass grow where formerly there was none. But what place shall be given to him who places a great enterprise like a lime plant on the eternal rocks where formerly there was none?

The Kritzer Company, 115 Adams street, Chicago, has just installed a hydrating plant for the International Lime Company at Limestone, Wash., on the Bellingham Bay & British Columbia railroad in the Kendall district, east of Sumas in Whatcom County of that state.

The International company has seen the signs of the times and has realized the wisdom of installing a hydrating plant to meet the rapidly growing demand for this product. The methods that have been used in the preparation of hydrate have varied from a mere sprinkling of the lime and subsequent grinding of the slaked material, to complicated saturation and air separation processes. The latter principle is employed in the Kritzer process installed for the International and which is in the most profitable use in many of the great lime plants throughout the country. The deposit of limestone is 2,000 feet long, 1,500 feet wide, and has a face opening of 125 feet. A prospect tunnel at the present working level was run for 100 feet through solid limestone, remarkable for the absence of any seams. Samples were taken for analysis, of which the following represent a fair average:

Calcium carbonate	97.58%
Magnesia	0.36%
Silica	1.32%
Iron and alumina	0.50%

The quarrying is done by blasting and sledging, after which the rock is loaded on cars and dumped into the quarry bunkers.

From the bunkers the rock is fed through metallic chutes into the buckets of the aerial tramway.

The latter is made by the A. Leschen & Sons Rope Company of St. Louis. It consists of a lock coil cable 2,000 feet in length with a vertical elevation of 1,100 feet. It is operated by gravity from the upper terminal by a series of five brakes. The buckets automatically attach and detach themselves at the respective terminals and are discharged by an automatic tripping device. The present capacity is 25 tons per hour with a possible maximum capacity of 75 tons per hour.

The lime kilns are of the type designated and manufactured by the Mutual Engineering Company of San Francisco. The shell consists of 3-16 in. steel, is 40 feet in height and 10 feet in diameter, with a capacity of 70 tons of limestone. The lower portion tapers to a cooling cone with an 18-inch outlet, controlled by a geared draw gate operated by hand wheels. The lining of each kiln consists of Harbison-Walker Refractories Company's "Woodland" fire brick set in front of "Silocel."

The fuel used in the plant is wood cut from the company's adjacent properties and the firing is done through four fire-boxes with cast iron fronts.

The burned lime is drawn every four hours and dropped upon a concrete cooling floor, each kiln yielding about 110 barrels of lime.

The kilns are roofed over by a steel trussed roof with an umbrella-like structure protecting the kilns at the roof line.

The lime, after cooling, is wheeled to a Sturtevant No. 1½ crusher where it is reduced to pieces less than three-eighths inch in diameter. It is then elevated 43 feet by a steel dust elevator and distributed by a screw conveyor to storage bins of 25 tons capacity each.

From these bins the crushed lime is fed by means of a geared gate into the Kritzer hydrater. This apparatus consists of 6 cylinders connected with a 40-foot stack, water jacketed for 30 feet. The water in this way becomes heated by the gases to 110 degrees F. Each cylinder is arranged with a screw which moves the material in a direction opposite the flow of the gases. The water supply is carefully regulated, about 30 lbs. of water being required per 100 lbs. of lime.

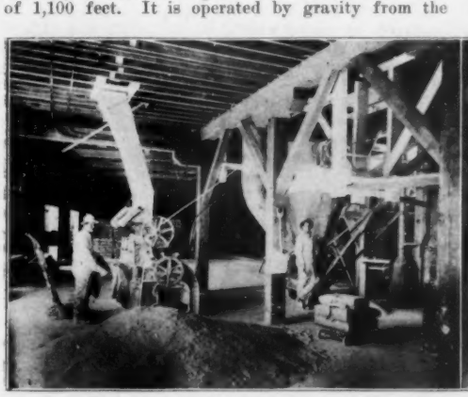
The hydrated lime is next discharged into a screw conveyor 28 feet long, elevated 30 feet by a chain bucket conveyor to the second floor and discharged into a hexagon revolving screen, where all material of ⅜ inch or larger is separated and rejected. The rejects consist either of core (unburned or overburned material).

The fine material passing through the screen is fed into a Raymond scalper running 2,700 revolutions per minute, which throws it upward into the suction of a Raymond cyclone fan, running at 1,700 revolution per minute, which forces it through a pipe 30 feet long and 18 inches in diameter to the dust collector. It is next discharged by gravity to the hydrate bins of 10 tons capacity, and from which it is sacked for shipment.

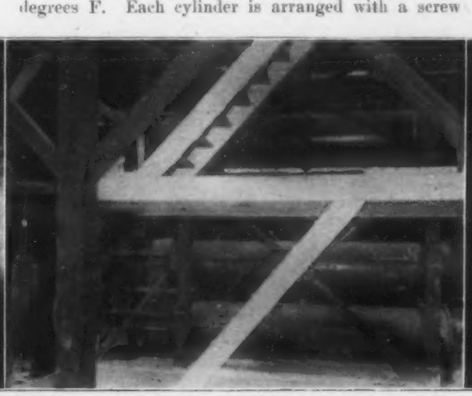
All material which is not moved by the fan is rejected and drops to the first floor.

The sacking device consists of an Urschel-Bates automatic valve bagger, with a capacity of 500 sacks per hour, and is operated by two men. The paper sacks are made by the Urschel-Bates Valve Bag Company and are sealed air tight, each sack holding about 40 lbs.

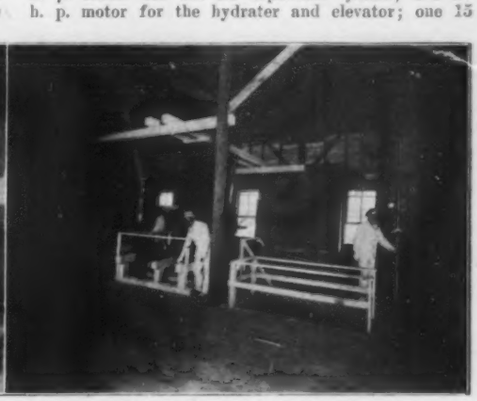
The power installation is entirely electrical, utilizing the current from the main transmission line of the Whatcom County Railway & Light Company's plant at Nooksack Falls. It is a 3-phase system stepped down from 38,000 volts by two transformers to 440 volts. The motors are of the General Electric type, with automatic governors, and consist of one 35 h. p. motor for the air separator system; one 15 h. p. motor for the hydrater and elevator; one 15



URSCHEL-BATES BAG FILLER.



KRITZER HYDRATERS.



ON THE SECOND FLOOR.

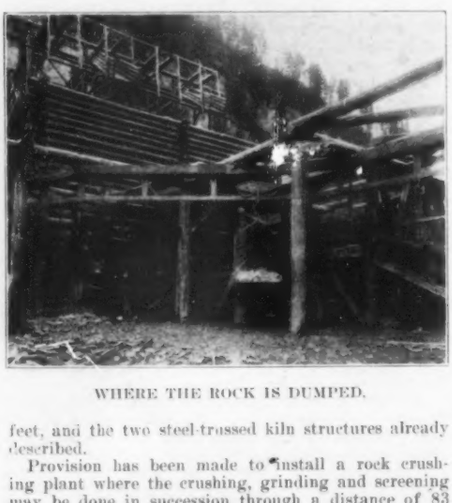


VIEWS OF THE QUARRIES WHERE LIMESTONE IS SECURED.

h. p. motor for the crusher and elevator; one 15 h. p. motor for the bagging machine, and one 7½ h. p. motor for the dust collector, making a total of 87½ h. p.

The plant is connected with the B. B. & B. C. railroad by a mile-and-a-half spur and switching track. The road connects with rail and water transportation to markets at Sumas and Bellingham.

The buildings consist of a 3-story hydrating building 48x32 feet, with reinforced concrete retaining walls 10 feet high, on two sides; a warehouse 40x80



WHERE THE ROCK IS DUMPED.

feet, and the two steel-trussed kiln structures already described.

Provision has been made to install a rock crushing plant where the crushing, grinding and screening may be done in succession through a distance of 83 feet, the feeding being done by gravity throughout.



SOME OF THE INTERNATIONAL'S WORKMEN.

The main product of the plant is a hydrated lime containing 97.3 per cent calcium hydroxide, no calcium carbonate and no free lime; the remaining 2.7 per cent being mostly alumina. In fineness 100 per cent passes a 100-mesh sieve and 98 per cent a 200-mesh.

In the Kritzer hydrater no injurious heat is developed owing to the action of the back draft and the constant agitation of the material by paddles which move it quickly away from the direct action of the water. It is claimed for this process that, owing to the low temperature under which hydration is performed, the plasticity of the lime particles is not interfered with and the crystallization due to excessive heat by the sudden application of water, is entirely obviated.

After traveling 84 feet in a zig-zag course through the hydrater, the passing of the material to the Raymond mill, and through this mill, is accompanied by the cooling action of heavy air currents, which not only reduce the temperature of the hydrate, but assist in breaking it up into the finely divided flour in which condition it ultimately reaches the storage bin for the finished product.

The material rejected from the air separator consists of coarser hydrated lime with a kernel of free lime enclosed. It is proposed to use this material as a lime fertilizer. No use is made of the rejected material from the screen, although undoubtedly it can be utilized as a fertilizer by grinding.

The product of the limestone grinding plant will be employed as a road material in the construction of the "Rocmac" macadam. In the main this macadam consists of fine limestone from ¼-in. size to dust, thoroughly impregnated with a chemical binder, placed on the rolled surface, followed by coarser trap rock, or other road metal, and rolled until the grout from underneath is forced up through the interstice. The grouting is brushed to the center and sprinkled with dry limestone to absorb the excess solution. The use of "Rocmac" macadam is very satisfactory, and has proved successful in experiments conducted in England.

The uses of hydrated lime are familiar to the building and engineering profession as a safe, non-deteriorating lime product. As a constituent of hard finish plasters and of waterproofing mortars its qualities are well known.

The use of lime as a fertilizer in the Greater Northwest is highly recommended both by the state agricultural experts and by the U. S. Bureau of Soils in their latest bulletins. These recommendations are based on the fact that the lime content of Western Washington soils is very low. In the past no proper lime fertilizer has been procurable locally. The plant at Limestone was first established in June, 1909. One year was required for survey. In July, 1910, construction began, and on May 25, 1911, the plant began operation. The organization is well manned, having for its factory superintendent George T. Kinder, formerly with the Kritzer Company, of Chicago; Stuart Mannell as general manager, J. J. Maney as consulting engineer, and Corwin D. Smith as chemical engineer.

SELF-BURNING LIMESTONE.

Deputy Consul John D. Whiting, stationed at Jerusalem, has informed the State Department of his discovery in Syria of a limestone which literally burns itself. He says that while making a trip through the Hauran district, which is in a volcanic region south of Damascus, east of the upper Jordan, consisting in part of fertile plains and in part of a barren lava plateau and which is reached by a railroad from Damascus, his attention was attracted to this curious stone. The party came on some natives burning it and being able to see the operation, he describes the operation as follows:

"At this place the rock lay in a stratum between ordinary limestone; it was of a grayish black color, and when freshly broken had an odor of petroleum. Near by were outcrops of what looked like the same material many rods long and 20 to 30 feet thick.

"The quarrying is easily done with primitive picks and other tools, as the rock is quite soft and full of seams. The stone is broken into small pieces with hammers and piled up against the bank of rock. A wall of the same material about 2 feet high is roughly laid up around the pile on three sides, making a pile of small stone 8 to 10 feet long and nearly as wide, and 2 feet at the front, rising to nearly three times that height at the back where it lies against the bank.

"In building the wall around the pile small holes are left for draft and in which to start the fire. When the kiln is ready to burn, a few small bunches of straw are placed in the holes mentioned, lit with a flint and steel, and in a short time the whole pile has ignited. The men then begin working on a new kiln while the other burns and cools.

"After about 12 hours of burning the stone has all become converted into lime, except the stones in the wall and the very top layer, which are only about half burned. When cool the lime is air-slacked and sifted to remove any pieces not thoroughly burned, which are thrown into a new pile to be fired again.

"While there we saw four kilns in all stages of the process except the firing. The workmen told us that it made a very black smoke with a bad odor like kerosene burning. The lime is white and said to make a very strong plaster, superior to the ordinary lime burned with brush, but sells at a much lower figure, because of the low cost of production. We were informed that in this district great quantities of lime are made in this way, and in places many gangs of men could be seen working at it, which tended to convince one of the quantity of this material which must exist. This stone is so located that, should it prove to be of commercial value, it could be easily transported."

Samples of the stone and the lime can be borrowed from the Bureau of Manufactures, in Washington.

NEW YORK LIME NEWS.

New York, Aug. 18.—The demand for lime in the local trade showed a slight improvement during the past month. Inquiries for the fall trade have been received and dealers are of the opinion that conditions in the lime trade will improve from now on. Prospects for a good fall business are very bright.

Foster J. Comstock, president of the Comstock Lime and Cement Company, speaking in reference to the lime trade, said: "There is nothing of interest to report in lime situation. The demand for lime continues quiet and the summer dullness prevails throughout the trade. Collections are slow and hard to make. I was recently talking to a dealer who said that a party owed him $5,000 and that he would be willing to settle for one-fifth of the amount, if he could collect it. During the past few days we have received a few inquiries but do not expect conditions to improve until about September 1, when fall trade is expected to begin."

O. F. Perry, of the Rockland-Rockport Lime Company, stated: "There has been a gradual improvement in the demand for lime during the past month, and the prospects for better conditions are bright. Collections are fair. Prices are unchanged and are as follows: Common lime, 200-pound barrel, 92 cents; 300-pound barrel, $1.37. Finishing lime is quoted as follows: 200-pound barrel, $1.02; 300-pound barrel, $1.47; 350-pound barrel, $1.62, in lots of 500 barrels."

E. B. Morse, of the Frank B. Morse Company, stated: "The demand for lime has improved somewhat during the past month. Contractors are commencing on inside work and we expect by September 1 that inquiries will increase. We look for a good spell of business during the balance of the year."

PITTSBURGH LIME NEWS.

Pittsburgh, August 18.—Shipments of lime were larger the last two weeks in July than they have been any time this year, with the exception of agricultural lime, which also had a big run in the spring. Few plants are not rushed with orders now. Prices are more satisfactory in many lines of builders' supplies and several plants in the Pittsburgh district have been greatly improved lately in order to increase their output.

Houston Brothers' Company are running their plant at Thirty-second street in full and cannot turn out enough agricultural lime to supply their customers. Their officials report this one of the most satisfactory branches of their business the past year.

The National Mortar & Supply Company now has its big plant at Gibsonburg, Ohio, in fine running order. It has been making extensive improvements there this summer, building new kilns and installing much new machinery.

The Lisbon Fertilizer Company, of Lisbon, Ohio, has been formed with a capital of $10,000 by David Ells, Cyrus Anglemyer, J. H. Hinchcliff and H. C. McCammon, of that place. The company is arranging to develop a fine limestone deposit on its property and will probably manufacture agricultural lime this fall.

A. G. Morris & Son report business very good. Most of their work at present is city jobs although they are bidding on some splendid country road projects. Their Butler county plant is now running full, but cannot keep up with their orders.

The Shaffer High Grade Lime Company has been organized at Franklin, Pa., by H. L., H. W. and Lillian Shaffer and John and Bessie Daugherty. It will have a large plant near that city.

The Franklin Manufacturing Company is arranging to build a large magnesia plant at Stoneboro, Mercer county, Pa., where it has purchased the plant formerly used by the Empire Portland Cement Company, of Warners, New York. R. J. Evans, of Franklin, will be vice-president and general manager.

The New Castle Portland Cement Company, of New Castle, Pa., has completed improvements which have been under way for several months and which give the plant a capacity of 400 barrels per day.

WEST COAST LIME NEWS.

San Francisco, August 14.—Mr. Badgley, of the Pacific Lime & Plaster Company, says the company's plant is operating about as usual. The best of the business, he says, is in the country, but he finds the season hardly up to expectations.

The Western Hydrated Lime Company has been incorporated in San Francisco with a capital stock of $20,000 by A. Jaggi, M. Dickerman, C. I. Chubbuck and L. D. Byrne. Mr. Chubbuck has been prominently connected with the local building material business for several years. The company is putting up a plant on Hooper street in this city.

It is reported that the United States Gypsum Company will put in a plaster mill near Blythe, Ariz., and the Santa Fe Railroad is now making a survey for a branch line to the property.

The Jackson Creek Lime & Cement Company has been incorporated at Seattle, Wash., with a capital stock of $250,000, by E. Sutton, E. Medberry and M. Collins.

WISCONSIN LIME NEWS.

Milwaukee, Wis., August 21.—The Wisconsin railroad commission has issued an order requiring the Chicago & Northwestern road to build a spur track to the plant of the Eden Independent Lime & Stone Company, at Eden, Fond du Lac County, Wisconsin. This is the outcome of the old controversy between the Nast Bros. Lime & Stone Company and the Union Lime Company and the Eden concern over a right of the latter to secure the building of a spur track to its quarries.

The Alabama Lime & Stone Company has been incorporated at Paint Rock, Ala., with $20,000.00 capital, by H. H. and H. M. Smith, G. W. and W. M. Nixon and J. R. Kindrick, of Chattanooga, Tenn. The company will develop 500 acres, build kilns and install pulverizing plant to crush limestone.

Some manufacturers of lime in Boston, Mass., speak of the demand for No. 1 lime as very fair and continue to quote it at 95 cents. No. 1 has been quoted as low as 85 cents, however.

The Holden Clay Products Company, Mineral City, O., has increased its capital stock from $10,000 to $75,000.

The Standard Cement and Lime Company, of Charlevoix, Mich., is erecting a No. 9 Gates crusher with 1,500 tons daily capacity.

SAND-LIME BRICK

SAND-LIME BRICK'S ADVANCE.

Rapid Growth of a Comparatively New Building Material Industry as Shown by Government Statistics.

The sand-lime brick industry was in a prosperous condition during the year 1910, according to statistics compiled by Jefferson Middleton, of the United States Geological Survey. These statistics also show a rapid development of the industry in recent years. The value of the production in 1910 was $1,169,153, against $1,150,580 in 1909 and only $155,040 in 1903. Michigan led in 1910, as for several years, and reported products valued at $240,649; this was a gain of $22,423, or 10.28 per cent, over 1909. Michigan's output constituted about one-fifth of the total value of all sand-lime products in 1910. Minnesota, the second in rank, produced $154,250 worth, was the state to show the largest increase over 1909—$41,181, or 36.42 per cent. New York was third in output, Florida fourth and Pennsylvania fifth. Of the states for which totals are compiled by Mr. Middleton Indiana showed the largest proportional gain, 93.70 per cent. Of these states only two showed a decrease in value of the product, Iowa, $16,941, or 35.14 per cent; and New York, $1,252, or 1.39 per cent.

Efficiency of Sand-Lime Bricks.

The process of making sand-lime brick was invented in Germany, where it probably has had its greatest development. Observations made there seem to prove that sand-lime brick is a building material which will resist shining soot. Three years ago an inn was built in Greifenhagen, in which sand-lime brick was used for everything but the lining of the chimney flues, which were built of common brick because at that time the question whether sand-lime brick was equally resistant to fire had not been settled.

The Perfection Brick & Tile Company has been incorporated at Boston, Mass., with a capital stock of $500,000. The company will manufacture tiling of all kinds.

SAND-LIME BRICK CHURCH.

At Winchester, Ky., stands one of the finest examples of sand-lime brick construction in that part of the country. It is the First Christian Church of that city. The structure is conspicuous on account of its classical lines, and the whiteness of the brick seems appropriate to an edifice of this character, as the very color of the structure and the use to which it is put impresses the beholder. The exterior is made artistic by the broad, inviting steps that lead up to the main entrance, and the great pillars at each side give the idea of strength. The brick for this magnificent structure were manufactured by the Winchester Granite Brick Company, of Winchester, Ky. This company also burns lime for all purposes and mines and ships building and concrete sand.

FINE SAND-LIME-BRICK RESIDENCE.

The house illustrated here was built for P. H. Cooper at Aurora, Ill., at a cost of $20,000. It is declared to be the finest example of sand-lime brick construction in the West. The house stands on a large lot in the best section of Aurora and its pure white appearance makes it the most conspicuous structure in the block.



FIRST CHRISTIAN CHURCH OF WINCHESTER, KY.



RESIDENCE OF P. H. COOPER, AURORA, ILL. BUILT OF SAND-LIME BRICK.

GOLD

A Profitable By-product of the Sacramento Sandstone Brick Co's. Plant at the Mouth of the American River.

The plant of the Sacramento Sandstone Brick Co. is located at the mouth of the American River, a branch of the Sacramento River, and the sand used is taken from the river bottom. The American River is not a navigable stream and during the summer months there is practically no water to contend with and a smooth, white bed of excellent sand is available, nearly the entire width of the river, approximately 1,000 feet across. In the rainy season and when the snow melts in the high Sierras, the water in this river raises twenty to thirty feet with a very swift current. It is during these months that the sand supply is brought down from far up in the mountains and deposited, by the action of meeting the waters of the Sacramento River coming from a different direction, at the mouth of the American River.

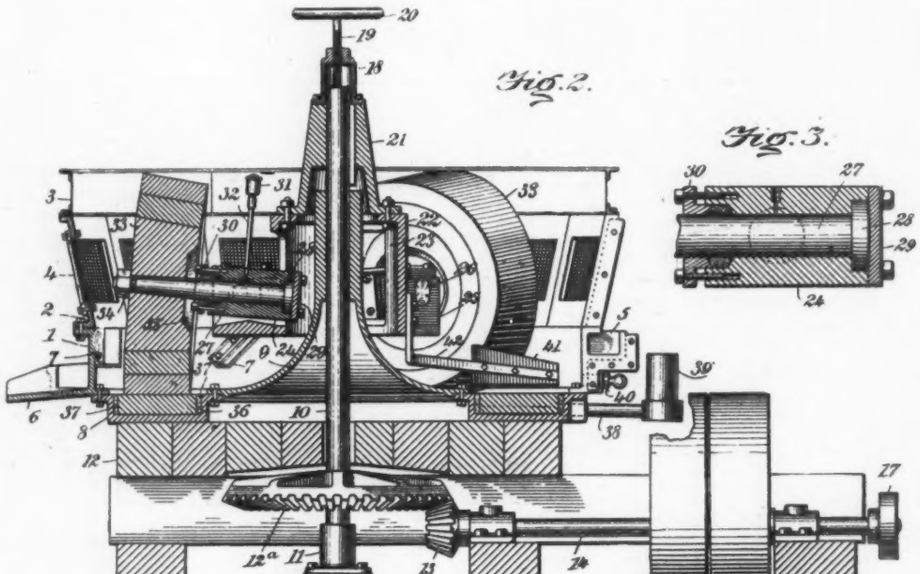
The American River and its tributaries drain the greatest gold sections in California and many of the leading mines of the state are located close to the banks of these rivers and their operations convey the tailings to the edges of the streams. These tailings contain more or less value in fine free gold which is washed down the river with the sand by the torrents, also other fine gold is carried down as the result of natural decomposition of the rocks in the mountains.

This process has been going on for ages and it is a well-known fact that much of the ground around Sacramento and vicinity is rich in gold values. At Folsom, sixteen miles up the American River from Sacramento, many square miles of valuable ground have been overturned by the dredgers of the Natomas Consolidated Companies. These dredgers work to a depth of 15 to 25 feet and each is a complete gold washing plant in itself. Ground with orchards and vineyards on, worth $1,000 per acre is being worked in this manner by a dozen or more of these dredgers, which cost approximately $150,000 to $200,000 each to build and nothing but piles of rocks, hard heads, are visible after they pass along.

In studying these conditions Manager G. W. Bostwick of the Sacramento Sandstone Brick Co. concluded the gold values in the American River sand were worth investigating, so he at once arranged to have a series of tests made. These were made by the assay process, by actual mill-tests and by panning. Every test showed values ranging from $2.01 up to as high as $5.20 to each ton of sand. Naturally the proposition became interesting to the stockholders of the brick company and machinery is now being installed which will supply the finely ground sand needed to manufacture high-class brick, and at the same time save the gold values with but very little additional cost.

The plan is to pump the sand from the river bottom, and down from quite a depth where the greater values are found, direct to the grinding machine which is somewhat on the order of the regulation wet pan with the exception that quicksilver is used in this machine for amalgamation. The sand will be ground to the desired fineness for brick making and every week or two the quicksilver will be drawn off by simply pulling out a plug, then the machine is thoroughly cleaned and the gold obtained will be purely a by-product. It is expected that $2 in gold will be saved in this way from each and every ton of sand worked up into brick and artificial stone.

The Sacramento Sandstone Brick Company has arranged to install an S. Beer Roller Quartz Mill, which will do the wet grinding on the sand, the same as a wet pan would, and at the same time saves the gold values. The accompanying illustration shows the details; however, only two of the large mullers show, but there are three of them in the machine. This machine is manufactured by the S. Beer Gold Mill and Extraction Co., of Sacramento, Cal.



S. BEER ROLLER QUARTZ MILL. SECTIONAL VIEW.

The Milwaukee Falls Lime Company is erecting six new lime kilns at Grafton, Wis.

The Ohio Sand Company, at Conneaut, Ohio, is installing conveying machinery to handle its product.

The Virginia Timber Company, of Springfield, Ill., is considering the advisability of installing a pumping plant on property owned by the company at Chandlerville, Ill.

The Sheboygan Valley Land & Lime Company, Sheboygan, Wis., has purchased all the swamp land in the towns of Russell, Rhine and Greenbush, consisting of a number of thousands of acres.

The Allwood Lime Company has been incorporated and is erecting new kilns at Rockwell, near Manitowoc, Wis. One kiln was started on July 21. A total of fourteen kilns will be erected and will be among the largest in Wisconsin.

The Board of Trade of Miami, Fla. has under consideration the establishment of a sand-lime brick plant with a capacity of 15,000 brick per day. A proposition has been made to that body by a Georgian, who contemplates erecting such a plant if certain concessions are granted him.

SAND AND GRAVEL

NEW YORK SAND AND GRAVEL NEWS.]

New York, N. Y., Aug. 12.—The demand for sand and gravel was fairly good during the past month. The demand for gravel was much larger than for sand and dealers were able to realize a higher price. The deep pressure water tube and other local jobs have created a good inquiry for these products. However, with work started in the subways the sand and gravel men look for heavy business to continue for some little time.

Joseph N. Ely, of the Crescent Sand & Gravel Company, said: "The demand for sand and gravel was active during the past month and business was good. The inquiry for gravel was very brisk and we have delivered more gravel during the past month than ever before in the history of the firm. We are supplying sand and gravel to Holbrook, Cabot & Rollins, contractors, who are building the deep pressure water tube from Union Square, Manhattan, to Fort Greene Park, Brooklyn. This job involves the tunnel under the East River, which will be more than 600 feet below the surface of the river. We are delivering on an average of three scows of sand and two of gravel per day. The outlook was never better, and with subways and other big jobs coming along, the sand and gravel men will be kept busy for some time to come."

W. J. Timberman, general manager of the Goodwin Sand & Gravel Company, speaking with reference to the sand and gravel situation, said: "While conditions in the sand and gravel trade were quiet in some quarters during the past month, there was a noticeable increase in the demand for gravel, and we have been able to realize a higher price. Business in sand is in a rut and is being transacted on a hand-to-mouth basis. With work started on the subways and other big jobs materializing, we expect a good business in the fall months."

Charles A. Fox, general manager of the Phoenix Sand & Gravel Company, said: "We have done a satisfactory volume of business during the past month. The demand for the first half of the current year was not on an active basis, but it came along spasmodically so to speak. This is something that I cannot understand, as it is the first season that these conditions ever occurred to my knowledge, although the aggregate sales each month averaged about the same. Business ought to improve soon and no doubt it will increase as soon as our financial conditions improve. There is a certain public service corporation which has $3,000,000 worth of construction work, but they cannot obtain a fair price for their bonds to enable them to raise funds to push this work along.

"The outlook for the balance of the year is very bright and we expect that new orders for sand and gravel will be placed for the subways during the month of October."

ILLINOIS SAND AND GRAVEL NEWS.

Springfield, Ill., August 21.—A municipal sand and gravel pit for the city of Elgin is advocated by Commissioner William F. Hunter.

The incorporation of the A. Y. Reed Sand and Gravel Company, of Elgin, as the A. Y. Reed Construction Company does not mean that the gravel field is to be forsaken. The change is to permit the concern to enlarge its field to include municipal paving. A new crusher has been installed at the gravel pit. The new concern is authorized by the state to have a capital stock of $5,000. The officers and incorporators are: President and general manager, A. Y. Reed; secretary and treasurer, Dr. Phillip Gillette and Mrs. Phillip H. Gillette.

The new Ross Construction Company, of Chrisman, will handle gravel.

John Kelleher, a sand dealer, is dead at his home in Batavia.

The Acme Sand & Gravel Company, of Manhattan, has been incorporated to deal in sand and gravel with a capital stock of $25,000. The incorporators are L. A. J. Scherer, P. C. Scherer, of Brooklyn, N. Y., and E. R. V. Coon, of New York City.

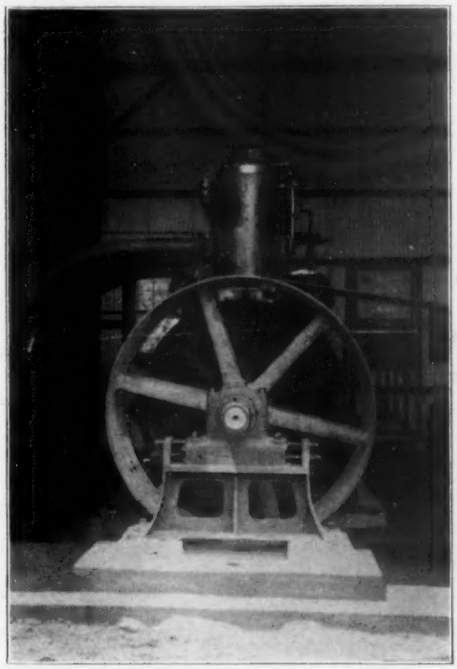
The H. D. Conkey Coal Company, of Mendota, Ill., is developing a washed gravel and sand pit with a capacity of twenty cars a day at Yorkville, Ill.

INSTALL NEW OIL POWER PLANT.

The Crescent Sand & Gravel Company, of New York, N. Y., have just installed in their works a new fuel oil power plant which will enable them to work night and day.

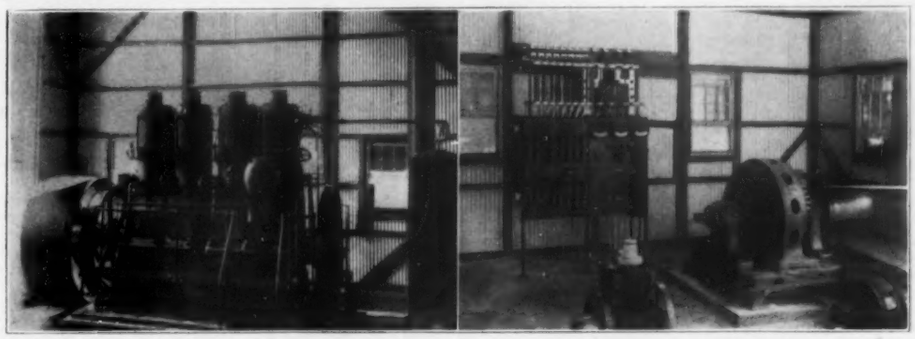
Heretofore they received their power from a concern which supplied light to the town and they were greatly inconvenienced during the busy season when they were unable to operate their plant after sunset.

The engine was made by Mietz & Wise, of New



FUEL OIL POWER PLANT RECENTLY INSTALLED BY CRESCENT SAND & GRAVEL COMPANY.

York, 4 cylinder vertical, cylinders 14 inches, drain 18½ inches, stroke developing 200 B. H. P. at normal speed of 240 R. P. M. It is of the internal combustion type using fuel oil, kerosene or distillate and is guaranteed to develop its full rated horse power with fuel oil of 19,500 B. T. U. per pound which at the present time is about 2½c per gallon delivered in storage tank, making the cost per K. W. hour about 1¾c, including fuel, oil, waste, labor, interest on plant and depreciation. It drives a 150 K. V. A. Westinghouse 200 volt A. C. Generator which in turn drives a 6 K. W. D. C. Westinghouse exciter. The switchboard is arranged with a double pole, double throw 600 ampere main switch and



FUEL OIL POWER PLANT RECENTLY INSTALLED BY CRESCENT SAND & GRAVEL CO.

for 250 ampere feeder switches with two 6 ampere lighting circuit switches.

The main switch is so arranged that either the current from the local electric light company or that from the Crescent Sand & Gravel Company's plant can be used by simply throwing the main switch from one pole to the other; this can be done instantly. The main switch and also all the feeder switches are fused as are also all the switches at the different motors used throughout the plant.

Fuel is stored in a 20,000 gallon iron tank having a pipe line connection to the company's docks so that oil may be pumped directly from tank boats into storage tank, thereby doing away with all handling.

Running at normal capacity one filling of fuel tank will last about six months. One attendant takes care of the whole plant as about all that is required is to stop and start the engine and fill the automatic pump feed lubricator.

While the first cost of such a plant is somewhat more than that of a modern steam plant of the same capacity, it has been proven that with oil engines power can be generated at considerably less cost, the ground space taken and number of buildings required is less with the oil plant and in the great convenience of handling and storage of fuel there can be no comparison. This type of engine is coming into general use throughout Europe and it is only a question of time when our own engineers will recognize its advantages.

PITTSBURGH SAND AND GRAVEL NEWS.

Pittsburgh, August 18.—Dealers here are quite encouraged in general. While building operations are not at all brisk yet, there is a good increase over the amount of work done one month ago. Also the big city jobs which the new council is pushing on to the boards for bids are making some nice sales for the sand companies. Most concerns report all their boats and teams busy and say that business in general is very much better than at any time this summer. The exception to this is the foundry sand people, who are blue. Business is rotten with them. Foundries are well stocked, are running light or are not taking on any more supplies for next year's requirements until business conditions are more satisfactory. The glass sand people are beginning to make shipments again and by the 20th will be in the midst of their fall trade. Prices on glass sand are being quoted somewhat better and firms are holding to quotations.

The Winfield Sand Company says that business has been rather slow this summer, but is getting better now. It has just started its plant again in the manufacture of high-grade sand for plate glass companies, which are beginning to resume operations. Its shipments of building sand are also a little improved.

Iron City Sand Company has all its boats busy on the Allegheny River and is using all the teams it can get. Its city business is much better and its officials look to the big north side improvements for some nice contracts this fall.

The National Sand & Gravel Company reports a fair business. City jobs are coming onto the boards in extra numbers lately so that trade in this line is considerably better.

The Rodgers Sand Company is fairly busy on all the rivers. It reports no surplus of orders, but a good fair business all around.

The Pennsylvania Glass Sand Company will start shipments next week to the glass concerns. The outlook is much better. Its plants at Mapleton, Pa., on the P. R. R.; McVeytown, Pa.; Berkeley Springs, W. Va., and Hancock, W. Va., on the B. & O., are all in good shape for a nice run this fall.

The Berkeley Glass Sand Company, of Berkeley Springs, W. Va., has been organized with a capital of $200,000 by Stuart S. Saney, Charles B. Hoffman, of Baltimore, and others, to manufacture glass sand.

The Deckers Creek Stone & Sand Company has resumed operations at its plant near Morgantown, W Va. It is running its crusher and plant in full with fifty men employed and enough orders have been received to keep the plant operating some time.

A new concern at Beaver, Pa., is the Pittsburgh Silica Sand & Brick Company, organized under Pennsylvania charter, with a capital of $5,000.

The East Side Utilities Company, in which Clarence D. Robinson and Hugh F. Smith, of Fairmont, W. Va., are largely interested, will soon open up a sand plant on the Swiger farm above Colfax, on the Valley River. The company has a splendid deposit of fine brown building sand and an admirable location for shipments.

Messrs. Bannon, of Portsmouth, Ohio, have bought 16 acres of gravel land on the N. & W. Railroad near Wakefield, Ohio, and will shortly put in a $60,000 plant for screening, washing and loading gravel. It will have a good market in the Pittsburgh district.

J. W. Gipner, of the East Liverpool Sand & Gravel Company, of East Liverpool, Ohio, is superintending the erection of a water works system and 13 miles of pipe lines at Amherst, Ohio. The company has also secured the contract for building two immense reservoirs at Binghampton, N. Y., to cost $63,000.

The Enterprise Sand Company says that trade in foundry sand is absolutely N. G. There is no business for the foundries and as a consequence they are not giving any business to the sand men.

CHICAGO SAND AND GRAVEL NEWS.

Chicago, Aug. 21.—Continued backwardness by builders here has held the sand and gravel business down to a minimum. All of the dealers, however, believe that the fall trade will be good and all are waiting for it.

There has been no change in prices during the past month.

C. H. Stebbins, of the Lake Shore Sand Company, said, in reviewing local conditions: "Indications for the coming fall business are pretty good. The demand for sand has improved during the past month, and although prices are remaining about the same, the outlook is very good. Building materials in general seem to be advancing in demand and I see no reason why this fall business should not be as good as any we have had. Building operations are fairly heavy and are on the increase."

A. O. Richardson, president of the Richardson Sand Company, said of conditions: "Business with us is not very brisk this month. Prices have not changed and building operations are still dull owing to the fear of builders to invest money when strikes are prevalent. I believe, however, that fall trade will be good. The indications point that way and things may loosen up before next week, so that the sand and gravel business will improve."

C. B. Sheffler, president of the Garden City Sand Company, said of the past month's business: "Conditions in the sand and gravel trade are not any too good, but they show signs of increasing. Prices have not changed since July. I think that in a very short time business will show signs of improvement."

The American Sand & Gravel Company reported that there had been no change in business since last month. Conditions in general are satisfactory and it is confidently believed that there will be a very good trade in the next three or four months. Building operations are throwing off the various checks which have been handicapping them and are improving.

LOUISVILLE SAND AND GRAVEL NEWS.

Louisville, Ky., August 15.—The Ohio River Sand Company has been worked to capacity limit throughout the past month, according to its report to Rock Products. The Sewer Commision contractors are requiring tremendous amounts of stock, work on the big McCracken sewer having been commenced in the East End residence district a few days ago. The sand deliveries of the Ohio company to the Louisville waterworks and the Kentucky Electric Company's new plant are almost completed but a fine new job has been received for the Union Warehouse Company, which is erecting an immense storeroom at Seventh and Magnolia avenues.

John Settle, of the Ohio River Sand Company, returned a short time ago from a 10 days' vacation trip to Bay View, Mich., where he says that he had the traditional time of his life, boating, swimming and luring the finny denizens of the deep.

The Nugent Sand Company is working overtime at present handling an unusually large amount of work. The Nugent concern has been awarded the following handsome contracts: The sand to be used on the $800,000 Watterson hotel building; that for the Falls City Construction Company's skyscraper at Center and Jefferson, and that for the Weissinger Gaulbert apartment annex at Third and Broadway.

The Hillsman Sand Company, with offices at Limestone, Ky., is reported to have taken over the sand pit and property of the Lawton Sand & Supply Company at Lawton, Ky.

QUARRIES

INTERESTING CRUSHING PLANT.

Port Arthur Firm Installing Machinery that Has Unusual Features of Construction.

Stewart and Hewitson, general contractors at Port Arthur, Ontario, Canada, are erecting a crushing plant of 1,000 yards' capacity which presents a number of interesting features. The plant will be used for crushing trap rock for road work, ballast and concrete work, and it has an advantageous position for the marketing of these products.

It is situated midway between the cities of Fort Williams and Port Arthur, and has railroad connections with the Canadian Pacific, Canadian Northern and the Grand Trunk system, as well as the street railway system which connects both towns.

According to the plans as they are being executed, the rock is brought from the quarry on a 36-inch gauge track in quarry cars of two and one-half yards capacity, which are hauled up an incline to the plant by a 36-inch "S-A" friction hoist. The material is emptied into a No. 7½ Gates crusher driven by a Bullock motor; this crusher breaks to 3½ inches and delivers on to a 24-inch "S-A" belt conveyor, 200 feet centers, which carries the crushed rock to the head of the plant. Here it is discharged into two 48-inch by 18-foot "S-A" revolving screens provided with 1¼-inch, 1¾-inch and 2½-inch perforations and having dust jackets with ¾-inch perforations.

The over size from these screens falls to a pocket in the bins which empties into a No. 5 Gates crusher, recrushing to two inches. Material is taken from here by an 18-inch "S-A" belt conveyor, 100 feet centers, and conveyed to a point where it is discharged on to the main 24-inch conveyor and taken again to the screens.

The stone passing 2½-inch holes in the screen falls to another compartment in the bins, from which it is drawn as needed, recrushed in 42-inch by 16-inch rolls, discharged to the 18-inch conveyor, and returned again to the screens.

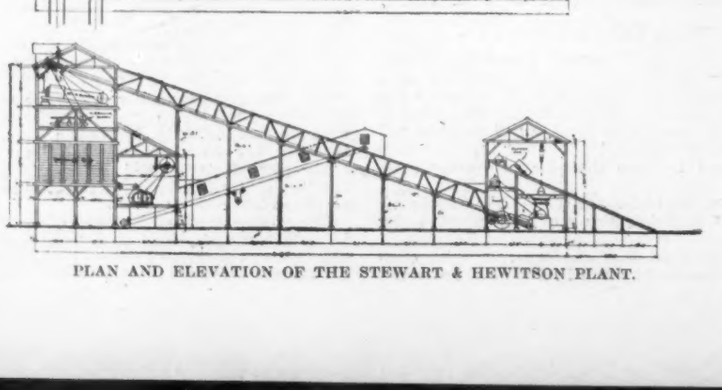
All stone passing the ¾-inch holes in the dust jackets of the revolving screens falls to 4-feet by 8-feet "S-A" counterbalance shaking screens (type described in "Labor Saver" No. 34), equipped with ¼-inch mesh wire cloth. This screen separates the product into dust, and stone ranging from ¼ to ¾ inch in size.

The storage bins have a capacity of 600 yards. Cars are loaded directly beneath these bins through 16-inch "S-A" swinging cut-off valves. The feed to the rolls and to the No. 5 crusher is controlled by 18-inch "S-A" quadrant type gates. Timber construction is used throughout both for the bins and for the conveyor structures and buildings.

The crushers and motors for the plant are being furnished by the Allis-Chalmers-Bullock Company, and all conveyors, screens, gates and transmission equipment are being furnished by the Stephens-Adamson Manufacturing Company.

The plant was designed by the J. C. Buckbee Company, of Chicago, and the erection is going on under the supervision of their engineer, W. C. Page. This plant is probably the most complete small crushing plant and the neatest and most compact in design which has ever been built by this company, although their plants have a reputation among engineers in all parts of the country for great simplicity and efficiency. They are famous designers of rock crushing plants, having designed and built the plants of the Dolese & Shepard Company, Chicago Union Lime Works, Dunbar Stone Company, Doolittle & Wilcox, Ltd., and many others of prominence.

This plant comprises in its design the most modern features of rock crushing plants, and it is the embodiment of principles demonstrated in years of experience in crushing plant design to be the best engineering practice. One of the features in this plant worthy of considerable note is the fact that belt conveyors are used entirely, and here is shown particularly the great advantage of conveyors over elevators for rock crushing plants. Conveyors were decided upon because of their greater reliability, large capacity and low cost of up-keep, and "S-A" conveyors in particular were designated because this type has proven in hundreds of similar installations to stand up longer and with less attention under this severe service.



PLAN AND ELEVATION OF THE STEWART & HEWITSON PLANT.

ILLINOIS CRUSHED STONE CLUB.

The Illinois Crushed Stone Club was organized July 15 at a meeting held in the Southern Hotel, St. Louis. Before winter all but a possible few of the half hundred quarries of the state will be represented in the membership. Its purpose is purely to promote good fellowship and coöperation in the crushed stone business and it is in no sense an organization to dictate or control prices.

The organizers of the club were A. J. Sullivan of the United States Crushed Stone Company and Paul Henderson of the Western Stone Company. The officers elected were: A. J. Sullivan, Chicago, president; Harry C. Barnard, St. Louis, vice-president; Paul Henderson, secretary. These with Walter McLaughlin of Kankakee and John Roper of St. Louis form the executive committee.

The organization of this club is in accordance with the modern idea that associations in trade lines form the essential basis for the peaceful conduct of business. The simple fact that one of the officers made the remark, "We have found that there are a lot of good fellows in the other companies and are not the bandits we thought they were," is of itself sufficient justification for the club in the eyes of those who formed it. The officers' plan is to get the members together at intervals, probably in the winter months and midsummer when trade is dull, and talk over affairs of mutual interest.

One of the subjects that will engage the attention of the club first of all will be that of good roads. Illinois is behind some of the other states in the matter of providing good roads in the rural districts. The state pays out the sum of $6,000,000 annually for road improvements, but only $2,000,000 of it ever finds its way in actual work. The money is eaten up in fees and other expenses incurred by the 1,500 highway commissions of the state. The stone men realize that until there is a reform in the methods there can be no real improvement.

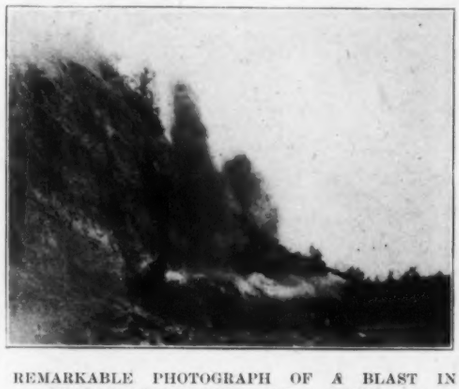
The farming communities in every part of the state and the automobile interests are demanding better roads, and the stone companies stand ready to furnish the material. All the members of the club are enthusiastic on the subject and it is certain it will be discussed at a meeting that will probably be held in January.

One of the good results of the organization along association lines is seen even now in a betterment of trade relations between the various companies represented in the club. In former years when one company learned of prospective business in territory near another and outside of its own freight zone no attention was paid to it. Now, however, each one is on the lookout and if any business comes up that belongs to a member in some other territory that member is informed of it and given an opportunity to get the business.

This is a practical working out of the association idea, and with the various trade zones of the state well defined there is no reason why it should not continue.

REMARKABLE PHOTOGRAPH.

It is not often that a photographer has the opportunity to get a picture of anything like 3,750 pounds of dynamite in action, but the man who took this picture did. The explosion took place in July in the new quarry at Lagarde, Ala., where



REMARKABLE PHOTOGRAPH OF A BLAST IN QUARRY OF LAGARDE LIME & STONE CO.

the photographer representing ROCK PRODUCTS was nearly buried in a shower of rocks following the explosion, but his camera was not injured. The quarry was that of the Lagarde Lime & Stone Company, near Gadsden. The photographer had set up his camera preparatory to taking a picture of the cliff when the explosion occurred, the concussion opening the shutter. The development of the plate later revealed a perfect picture of the effect of the charge, pieces of stone being caught by the camera in the air. The dynamite for the great blast was furnished by the Jefferson Powder Company, of Birmingham, Ala.

QUARRIES IN ILLINOIS.

Springfield, Ill., Aug. 21.—Bituminous macadam will be used for paving east and west Main streets in Marshall. The Board of Improvements has approved the plan.

Richard Egan, of Springfield, received the $28,705 contract for paving in Virginia, Ill.

A systematic plan of macadamizing streets is to be taken up in Elgin as a part of a "permanent improvements" campaign, which also includes new curbs and gutters and concrete sidewalks. A similar plan is already under way at Wheaton, which is serving as a guide to other Illinois cities.

The Granite City Lime & Cement Company, of Granite City, received the contract for paving work in that city, preference being given the work of the home concern.

Edwardsville contemplates paving in the Park-Benton District, estimated cost $16,000, and Commercial College District $4,500.

The Rockford Board of Improvements has approved plans to pave nineteen blocks with brick.

Steamboat owners, railroad companies and the city are interested in a project to pave the levee along the Mississippi river in Alton.

H. A. Boyd, of Morrison, was awarded the contract to pave Grove street for $25,310. The contract calls for 3,522 square yards vitrified brick, 16,170 square yards asphalt macadam and 10,468 lineal feet combined concrete curb and gutter.

Bement, Ill., contemplates two vitrified brick paving jobs which will aggregate about $50,000.

I. W. Osborne & Co., of Mattoon, will pave Main street in oblong for $23,623. Asphalt macadam will be used.

UNCLE SAM TO BUILD GOOD ROADS

Bill Introduced by Senator Cullom to Establish a Commission for the Purpose of Constructing Seven National Highways to Radiate From Washington.

Washington, Aug. 16.—The country is awakening to the importance of good roads. There has been some understanding but less appreciation of this question. Continued agitation has made converts. Action has followed in numerous localities, but what has been done thus far serves more to emphasize the great need for more concerted action than to remedy conditions which are admittedly bad, no matter what section of the United States is taken into consideration. The millions of dollars which have been set aside, making available about $1,000,000 a day in the nation at large for road building, have helped to stimulate business in road-making machinery and road materials. It is a question whether the ideal road has yet been devised, but rock, sand, gravel and cement continue to be among the materials most in favor.

Very much of the sentiment for more and better roads seems to be centralized at the national capital. Hon. Champ Clark is one of many prominent men who holds that the best form that can be given to the great memorial to Lincoln, for which Congress has appropriated $2,000,000, is a great national turnpike or highway from Washington to Gettysburg. Much influence is being marshaled by the friends of this idea and a great deal of support is being secured for it. As in ancient times "all roads led to Rome," so now many men think all roads should radiate from Washington, and if congress is to set the pace in road building, this may prove, eventually, to be the case, for the systems of national highways proposed generally have Washington designated as the initial point.

Apparently the efforts to change the form of the Lincoln memorial from an arch, monument or other architectural feature, to a great highway, has caused Senator Cullom to "back fire." He has introduced a bill, S. 3197 (by request):

To establish a commission; to create a national interstate highway system; to effect preliminary surveys of seven national interstate highways and the establishment of said highways. Said highways to be constructed from Washington, the capital of the United States, respectively to Portland, Maine; to Niagara Falls, New York; to Seattle, Wash.; to San Francisco, Cal.; to Los Angeles, Cal.; to Austin, Texas, and to Miami, Fla.; and for which surveys and maps, profiles and estimates of the same, for the use of the Congress of the United States, the sum of one million dollars, or so much thereof as may be necessary, is hereby authorized to be expended out of any moneys in the treasury of the United States not otherwise appropriated, said national interstate highways to be trunk-line highways, to which branch highways and good roads can be established throughout the country.

In the preamble the very first "whereas" declares that "the vital importance of good roads and modern highways throughout the country is being felt and advocated by a vast majority of the citizens of every State and Territory in the Union." This, doubtless, is a fact. It is also a fact that there exists "no system of national highways in the United States." The preamble continues by declaring that a system of national interstate highways "for the promotion and advancement of every public interest and the general welfare as well, should be established by the United States for the benefit of the people," and that Washington should be the center of such a system. Then comes a statement of the authority for the central government to carry out this great enterprise, as follows:

The United States under the following clauses in the Constitution of the United States, namely, the interstate commerce clause, the war-power clause, the general-welfare clause and the clause authorizing the establishment of post roads, Congress has the power to establish highways in every state and territory of the United States for mail, commercial and military purposes, in pursuance of which authority Congress has, as is shown by statement published by the treasury department, in eighteen hundred and eighty-two, constructed highroads in Alabama, Arkansas, Florida, Illinois, Indiana, Iowa, Kansas, Montana, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Mexico, Nevada, Ohio, Oregon, Washington, Wisconsin, Colorado, Virginia and New York, approximating in cost nineteen million dollars; and Congress has also constructed the National Cumberland road, extending from Cumberland, Md., through Pennsylvania, West Virginia, Ohio, Indiana and Illinois, at a cost itself of some six million dollars, and Congress has also constructed other public roads in other states and territories and insular possessions and also granted charters across the continent of North America to three Pacific railroads.

It is next shown that $3,000,000 of national funds has already been spent in the Philippines to establish highways "for the ease and comfort of a race alien by nature and that can never be assimilated by the white man," and that similarly "quite two million dollars of money from the treasury of the United States has been expended for macadam highroads in distant Porto Rico"; also that within the past few years $2,000,000 has been expended in Alaska in road building, "where the population averages but the meager number of one human being to each square mile and is in large part Eskimo"; also that from time to time congress has appropriated some 200,000,000 acres of land in the aid of railroads, which land at present valuations would amount to some eight billion dollars; also that $1,500,000 has been spent on macadam highways in the canal zone; $700,000,000 on rivers and harbors; and that whereas the annual foreign commerce of the United States amounts to three billion dollars, the annual internal commerce of the United States amounts to thirty billion dollars, "every pound of which practically is primarily carried on wagons and hauled over roads through the country that do not receive and have never received one dollar of benefit from the government." For all these reasons and the additional "whereas" that:

Whereas, To Bring lasting prosperity, promote true welfare and happiness among the people, advance civilization, encourage and stimulate patriotism, and cement more firmly the Union, Congress could enact no law more wise and salutary than to appropriate, for the foregoing proposed system of seven national interstate highways, the public moneys of the people on a scale proportionate to the appropriations already made for rivers and harbors, the Panama canal, and in aid of the railroads of the country as set forth above, and thereby, to be more specific, develop a greater, more vigorous, and thereby more powerful white population throughout our country, and, in the words of the American Association for Highway Improvement, "bring better schools and greater attendance, better health and quicker medical attention, better farms and more cultivated lands, better crops and cheaper transportation, better economic conditions and more producers, better social conditions and less isolation, better church attendance and better citizens—in a word, a higher life for the white man in America, upon whom rests the responsibility of our government and of our Christian civilization"; and

Whereas, These seven national interstate highways, the construction of which is herein contemplated, will not, as measured by the scale on the map of the United States, exceed a total combined length of twelve thousand miles, which at the liberal estimate of twelve thousand dollars per mile would amount to the comparatively moderate sum of one hundred and forty-eight million dollars, and will be of direct benefit to over ninety per centum of the people of the United States and can be built in a period of ten years; and

Whereas, This cost can be provided for, as in the case of the Panama Canal, by the issuance of bonds in amounts of fifteen million dollars per year or as may be required, which expenditure would not be excessive, but would be productive of untold blessings to all the people by giving them in a brief space of time approximately twelve thousand miles of magnificent and enduring national highways as above described, the maintenance of which can be provided for on moderate license fees; and

Whereas, By its system of tariff protection the United States has contributed in untold billions to the wealth of the manufacturers in the cities and towns while no such benefits have been bestowed upon the producers of the soil, the farmers, who are the foundation of our national life, bearing the bulk of all taxation; and

Whereas, Every sense of right and humanity condemns this unjust neglect of this great and vital part of our population; and

Whereas, The internal development of our country for the benefit of our people at their homes is the first duty of Congress; and

Whereas, Forty-seven per centum or quite forty millions of our people in the United States are crowded into cities and towns of two thousand five hundred inhabitants or more; and

Whereas, This congestion of our population can be relieved and distributed throughout our country only by the establishment by Congress of national interstate highways and good roads; and

Whereas, One million men in the United States are out of work who could be given profitable employment for a period of years by the government in the construction of these seven national interstate highways; and

Whereas, The President of the United States, with wise patriotism, has publicly commended the enterprise for the construction of a highway from Montreal, Canada, to Miami, Florida, and also by open letter has indorsed the American Association for Highway Improvement; therefore

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That a commission, to be known as the National Interstate Highways and Good Roads Commission, shall be established to determine the location and cost of routes for the following seven national interstate highways so said highways shall be constructed at an early date by the government:

A highway to be known as the Washington National Interstate Highway, to begin at Washington, in the District of Columbia, and to be constructed by the most direct route practicable via the corporate limits of Baltimore, Md.; Wilmington, Del.; Philadelphia, Pa.; Trenton, N. J., and touching New York City, and thence via Hartford, Conn.; Boston, Mass.; Concord, N. H., and extending on to Portland, Me.

A highway to be known as the Roosevelt National Interstate Highway, to begin at Washington, in the District of Columbia, and to be constructed by the most direct route practicable via Gettysburg and Harrisburg, Pa., and extending to Buffalo and Niagara Falls, New York.

A highway to be known as the Lincoln National Interstate Highway, to begin at Washington, in the District of Columbia, and to be constructed by the most direct route practicable to Seattle, Washington, passing through Maryland (via Sharpsburg), West Virginia, Ohio (via Columbus), through the states of Indiana and Illinois to Chicago, Ill., and extending on through Wisconsin (via Madison) and Minnesota to Saint Paul and Minneapolis, and thence through Minnesota, South Dakota, North Dakota, Montana, Idaho and the state of Washington to Seattle.

A highway to be known as the Jefferson National Interstate Highway, to begin at Washington, in the District of Columbia, and to be constructed by the most direct route practicable to the city of San Francisco, passing through Virginia, West Virginia, Ohio, Indiana, Illinois, Iowa and extending through Nebraska, Colorado, and thence through Utah, Nevada and California.

A highway to be known as the Grant National Interstate Highway, to begin at Washington, in the District of Columbia, and to be constructed by the most direct line practicable to San Diego, Cal., through Virginia, West Virginia, Kentucky, Tennessee (via Memphis), Arkansas, Oklahoma, northern Texas, New Mexico, Arizona and California.

A highway to be known as the Monroe National Interstate Highway, to begin at Washington, in the District of Columbia, and to be constructed by the most direct route practicable to New Orleans, Louisiana, and thence to Austin, Texas, via Charlottesville, Virginia, through North Carolina, South Carolina, Georgia (via Atlanta), Alabama (via Montgomery), Mississippi, Louisiana to New Orleans, and thence to Austin, Tex.

A highway to be known as the Lee National Interstate Highway, to begin at Washington, in the District of Columbia, and to be constructed by the most direct route practicable through Virginia (via Richmond), North Carolina (via Wilmington), South Carolina (via Charleston), through South Carolina and Georgia to Savannah, and thence through Georgia and Florida to Jacksonville and Miami.

The said commission shall be constituted as follows:

The President of the United States, who shall be ex officio chairman and who shall pass upon all recommendations and estimates of the commission.

The Secretary of Agriculture, who shall also be a member ex officio.

The Secretary of War, who also shall be a member ex officio.

The Chief of Engineers of the United States Army.

Seven Members of the Congress of the United States, three of the Senate—two of the majority and one of the minority party—and four of the House of Representatives—two of the majority and two of the minority party—to be named by the presiding officers of their respective bodies.

Five distinguished citizens, one of whom shall be the Hon. J. Floyd King, ex-member of Congress from Louisiana, the originator and author of this measure and at whose instance it is presepted; also originator and chairman of the first committee on inter-oceanic ship canal, etc.; and the other four members to be appointed by the President; also two distinguished citizens of the District of Columbia, neither of whom, however, shall be a presiding judge, to be appointed by the President.

Also seven engineers of the Engineer Corps of the United States Army, of whom one may be a retired Chief of Engineers, to be selected by or with the consent of the President.

Seven civil engineers, who shall be nominated by the Society of Civil Engineers of the United States, and who shall be appointed by the President: *Provided*, That there shall be no increase of compensation to those already receiving salaries from the Government, but that all expenses incurred in the performance of their duties as commissioners or engineers shall be paid as hereinafter specified.

The salaries of the distinguished citizens on said commission shall be at the rate per annum to be fixed by the President of the United States. The permanent president of said commission shall be chosen by it from the members of the United States Congress who are also members of said commission, or from among the five distinguished citizens who are also members of said commission: *Provided*, That in lieu of the foregoing provision for the selection of its permanent president said commission shall have authority to elect as its permanent president an ex-President of the United States, whose duties shall be prescribed and whose salary shall be determined by the President of the United States: *Provided further*, That in the absence of its permanent president the members of said commission shall select one of its members for its temporary presiding officer, but such selection shall be made from among the members of Congress or from among the distinguished citizens members of said commission.

In addition to their duties as commissioners said citizen appointees shall go before the legislatures of the several states and territories and the important municipal bodies and invite their attention to the consideration of the question of national interstate highways, and good roads, and to recommend and urge the states, territories, and counties, and said municipal bodies to join this great movement and to construct state highways to connect with the national highways, with a view of forming a universal system of improved highways and good roads throughout the entire country, all ultimately leading to the capital of the nation by way of the said seven national interstate highways.

The salaries of the civil engineers on said commission shall be fixed by the President, but shall not be less than that of the military engineers performing equivalent service.

The duties of said commission shall be to determine, as far as practicable, and at the earliest date possible, the location and approximate cost of the foregoing national highways; to report the same promptly to the President, who shall, by special message, transmit said report, with his recommendations thereon, to Congress at the session next following the passage of this Act; so that said national interstate highways shall be early estsblished by the Government.

The preliminary surveys to determine the routes to be followed by the said seven national interstate highways and cost of same shall begin at and equally continue from Washington, in the District of Columbia, and shall be commenced at one and the same time; also the seven

national interstate highways shall be commenced at the city of Washington, in the District of Columbia, and continuously built therefrom: *Provided*, That if it be deemed most expedient by said commission that the said seven national interstate highways shall be constructed in sections, the same shall be done, but in a manner to insure the most early completion of the said highways from Washington, the capital of the Nation, as continuously as possible, each to its farthest limit. This proviso shall apply equally to the carrying out of the above surveys.

The grades of said national highways shall be fixed by said commission: *Provided*, That all said grades shall be reasonable and easy for traffic; and said national interstate highways shall be thoroughly macadamized in accordance with the latest recognized standard of such construction.

The width of said national highways shall be uniform, as far as practicable, and shall be determined by said commission, but shall be suitably wide to afford ease, safety, and comfort for rapid and foot travel, and for heavy truck traffic as well.

No rail or tram ways shall be permitted on any of said national highways, and wherever any of said national highways may cross a rail or tram way said national highway must be constructed so as to pass either above or below the grade of said rail or tram way, so that traffic on the highway may not be interfered with in any manner.

The headquarters of said commission shall be in the city of Washington, in the District of Columbia, and it shall have power to rent and furnish suitable offices and workrooms; to call upon the President to detail engineers of the United States Engineer Corps and to appoint civil engineers in such numbers as may be necessary for carrying out its work: *Provided*, That the military and civil engineers be of equal number; to employ such secretaries, clerks, bookkeepers, stenographers, draftsmen, and other employees as may be necessary; to purchase such office and field equipment as may, in its discretion, be necessary for carrying on its work.

All expenses incurred, by traveling or otherwise, in performance of their duties, by members of the said National Highways and Good Roads Commission or its employees, shall be defrayed out of the moneys appropriated for the use of said commission.

Provided, That said commission shall designate and have its engineers make estimates for the establishment of branch highways from said seven interstate national highways, necessary to reach capitals of states, and also cities of not less than two hundred thousand inhabitants not touched by or contiguous to either of said seven national interstate highways; a branch of the Jefferson National Interstate Highway shall extend to St. Louis, Missouri: *Provided further*, That said commission shall have authority to suggest and recommend other national interstate highways as may, in its judgment, be deemed advisable or necessary for the promotion of the public welfare.

Said commission shall at the earliest date practicable have its engineers prepare maps, profiles, and estimates of cost of said seven national interstate highways for the use of the United State Congress, and supplementary maps, profiles, and estimates, for branch highways as above prescribed, shall be likewise furnished at the same time.

For the carrying out of the purposes set forth in the foregoing bill the sum of one million dollars, or so much thereof as may be necessary, is hereby authorized to be expended out of any moneys in the treasury of the United States not otherwise appropriated.

NATIONAL HIGHWAY MEMORIAL.

Washington, August 16.—Representative William P. Borland of Missouri appeared before the Lincoln Memorial Commission at the White House recently to voice the sentiment of those in Congress who favor a great highway from Washington to Gettysburg as the essential feature of the National Memorial to Abraham Lincoln, as opposed to the purely ornamental structure on the Mall recommended by the Fine Arts Commission.

The Lincoln Memorial Commission was advised of the strong sentiment in Congress and throughout the country in favor of the road to Gettysburg, and of the determined opposition in many quarters to the plan for a purely ornamental structure on the Mall, as proposed by the Fine Arts Commission.

Mr. Borland has introduced a bill providing for a survey and report on the Gettysburg road project, which he believes Congress will adopt at the next session.

The city of Key West, Fla., has given the contract to the Southern Asphalt & Paving Company, of Birmingham, for $200,000.00 of street paving.

A STONE CRUSHER IN A PENITENTIARY.

Breaking rock has been for centuries one of the recognized forms of employment for "hard labor" prisoners in a penal institution. The labor costs nothing. A stone crusher is, therefore, the last thing one could expect could be operated economically in a penitentiary. Yet this has been accomplished by a Universal crusher, made by the Universal Crusher Company, of Cedar Rapids, Iowa.

The State of Iowa has in the reformatory at Anamosa a limestone quarry from which excellent material has been taken for use in the construction of government buildings. The State Board of Control of Iowa a few months ago took up the question of installing a stone crusher at the state reformatory. As those who were to operate the plant would be ignorant of stone crushing machinery, great care was exercised by the board in selecting one of the simplest and most effective crushers on the market.

The No. 3 with engine and full equipment, was installed on 60 days' trial. The officers of the institution were immediately struck by the great uniformity of the product, and the instant adjustability to any size required. The simplicity and ease of working the machine were as highly appreciated as the great capacity compared with the



NO. 3 UNIVERSAL CRUSHER, WITH ELEVATOR AND SCREEN.

expense of operation, which made the crusher a profitable investment even for an institution of this kind.

ALABAMA GOOD ROADS CONVENTION.

According to Colonel John Craft, president of the Alabama Good Roads Association, that state has spent $80,000,000 on roads and there is not a mile of good highway in the state to-day. Colonel Craft recently came to Washington to invite President Taft to attend the good roads convention to be held in Mobile, Ala., in October. Colonel Craft, a prominent business man of Mobile, has been interested in the good roads movement for fifteen years. He said while in Washington that Alabama had spent an average of $2,000,000 a year for roadmaking for a period of forty years, and that there was practically no visible result for all that outlay. He said that the plan being pushed now is to interest the counties in road building, and that a system was being formulated whereby the state should reap the benefit from the expenditure for highways, instead of having it all go to waste, as has been the case in the past. In an interview given to a local paper, Colonel Craft said:

"Our scheme is to have the counties issue bonds for the building of roads, and we want President Taft, who has always advocated good highways, to come down and help us out. Besides, the South, and particularly the State of Alabama, wants to welcome the President, and show him what great progress we have made in the past five years."

JOHN BICHLER STONE PLANT.

The accompanying photograph shows a view of the yard and quarry of John Bichler, dealer in building material and crushed stone, Gross, P. O. Mich.

This plant has a capacity of 350 cubic yards of crushed stone per day, and it is entirely operated by electric power from the Escanaba Traction Company, which has built a dam and operates an electric plant there. Mr. Bichler operates a No. 3 and a No. 5 Austin gyratory crusher and a No. 4 jaw crusher.

They are now working on a large crushed stone contract for the Solid Rock Construction Company, for road making.



VIEW OF QUARRY OF JOHN BICHLER, CRUSHED STONE CONTRACTOR, GROSS P. O., MICH.

Mr. Bichler says that the busy season has just recently started up and that from now on till the middle on September there will be a very good trade in crushed rock.

CLAY

CLAY SHOW AT CHICAGO.

The International Brick and Clay Products Exposition Company has issued its prospectus for the show to be held in the Coliseum, Chicago, March 7 to 12, 1912. The book is a beautiful example of the printing art and contains full information concerning the show. The cover design in colors shows a row of typical kilns in the background, while in the foreground is a figure of an Egyptian tile worker placing a tile in a primitive oven. The conception shows the advance from primitive methods to those of the present.

The first allotment of space at the Coliseum was made August 15 and a very large number made application. Applications are considered in the order in which they are received so that absolute fairness will be assured.

At the last annual meeting of the National Brick Manufacturers' Association held in Louisville, Ky., a resolution was passed endorsing the Clay Products Exposition and pledging it support. It was decided to hold the next annual convention of the association at Chicago during the Clay Products Exposition week. The Middle West Clay Workers' Convention, held in Chicago last February, passed similar resolutions, as have other clay workers' associations, including the National Paving Brick Manufacturers' Association.

WISCONSIN FREIGHT RATES LOWERED.

Brick manufacturers of Wisconsin won a sweeping victory recently when the state railway commission, acting upon the complaint of John Ringle, a brick manufacturer of Wausau, Wis., president of the Wisconsin Clay Manufacturers' Association, ordered all railroads operating in Wisconsin to make reductions in their freight rates, amounting to approximately one-third of the rates now in force. The order was made after a hearing by the commission, at which an investigation of all the facts involved was made and existing rates were found unreasonably high.

The railroad commission on August 4 held a rehearing on the matter, but it is believed that the reduction order will hold, as the Wisconsin Clay Manufacturers' Association strongly urged the commission to adhere in its stand and presented plenty of additional evidence that existing rates are too high.

Brick manufacturers outside of Wisconsin have been able to ship their product into Wisconsin at a rate approximately one-third lower than the Wisconsin rate, and as a result much business from this state went to them. The reduction order of the commission will apply to tile as well.

WEST COAST CLAY NEWS.

San Francisco, August 18.—Gladding, McBean & Co., of this city, who have one of the largest pottery, terra cotta and sewer pipe plants in the state at Lincoln, Cal., are making improvements on a large scale. A contract has been let for a steel frame clay shed about 300 feet long, in which a big traveling crane will be installed to handle the clay from the cars. A narrow gauge tramway 1½ miles long will be built from the shed to the clay banks, and a steam shovel will be put on to load the cars.

The sewer business has received a severe setback by the Supreme Court decision that the Oakland sewer bonds are invalid. The contracts, as announced last month, had already been let, but will have to be canceled, and it will take several months to get out a new bond issue. This is a great hardship to the residents of the district affected, which is now thickly settled and has practically no sewer facilities.

The plant of the Columbia Silica Company, Portage, Wis., is now in charge of W. H. Collins and the silica brick output of the plant will be increased. The plant has a capacity of 23,000 brick per day.

The plant of the Brillion Brick & Tile Company, Brillion, Wis., is operating full blast. Several new buildings have been erected and considerable new equipment has been added.

The Youngsville Brick & Tile Company, Bradford, Pa., obtained a charter under Pennsylvania state laws August 4. Capital $60,000.

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"TRADE MARK"

Gives the long sought, reasonably-quick-hardening lime mortar necessary in modern building construction. For interior and exterior work. Makes every mortar (excepting white coat) needed in a building. Preserves metal lath or iron work. Will not be damaged by water. Permanence, strength and plasticity.

BERKELEY HYDRATED LIME

Scientifically hydrated fresh burnt HIGH CALCIUM lime; free from all impurities; can be kept indefinitely. An impalpable powder ready for immediate use. IT'S ALL LIME.

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ALL THAT THE NAME IMPLIES. For strength and durability it is unequaled. Every Barrel Guaranteed.

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Lightest in Color
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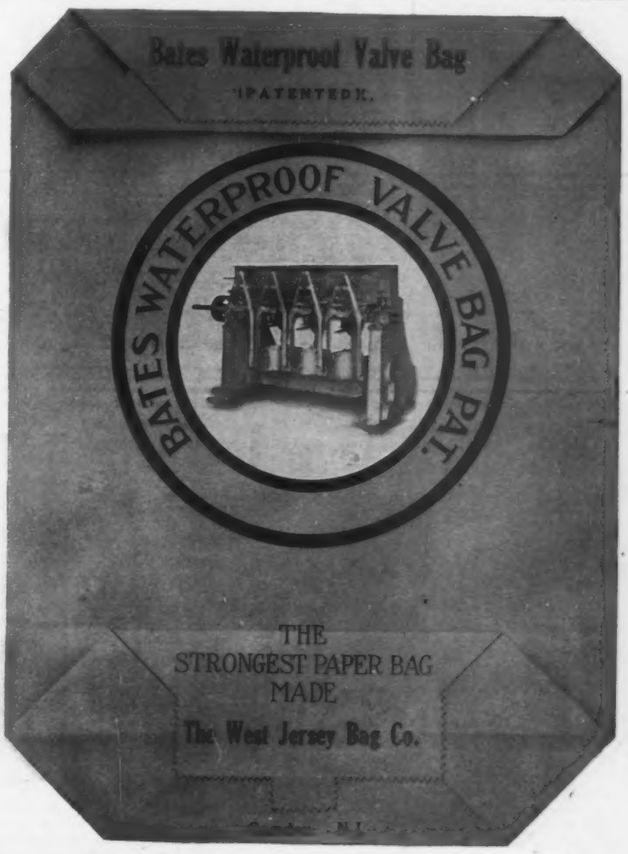
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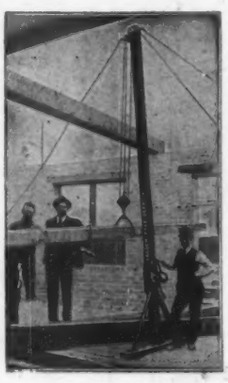
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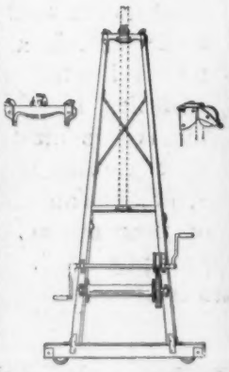
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18 ft. Pole Derrick, complete as above shown, except guy lines, including rollers..... $26.50



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18 ft. "A" Frame Derrick, complete as shown above, ready for hoisting.. $45.00
With geared winch for 1½-ton capacity..... $48.00

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We have designed hundreds of washing and screening plants and each one has proven a success. There are more sand and gravel plants equipped with "S-A" Machinery than with machinery of any other make. The entire success of these plants both operating and commercial, warrants your investigation.

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This photograph shows the plant of the Southern Gravel & Material Co., at Brookhaven, Mississippi, which is entirely equipped with "S-A" Belt Conveyors and Transmission Machinery and with our patented Gilbert Screens. This view shows the Railroad track Hopper that delivers the material to the "S-A" Belt Conveyor leading to the screening plant.

Cement Question

Dealers, contractors, and engineers in the Middle West are studying the cement question from new angles. The wisest ones are going behind the "Standard Specifications," having found that Superior, for example, far out-tests them, chiefly in fineness and in low magnesia. These two essentials of a true Portland cement are coming into greater prominence every day, and are being given due weight in the choice of a cement for work that must endure. The logic of experience strongly favors the dust-fine, low-magnesia product. Such is Superior. Use it—always. Ask for our free "Superior Catechism" No. 7.

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Washed-Steam Dried and Screened

White Sand

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You can order less than a carload, in fact shipments as small as five 175 lb. bags can be delivered economically.

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Tell 'em you saw it in ROCK PRODUCTS

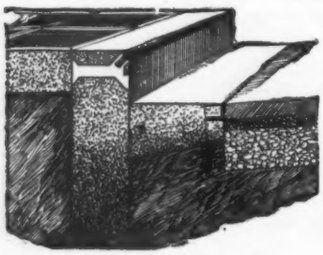
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FOR PROTECTING EDGES OF CONCRETE CURBS, STEPS, COLUMNS, ETC.

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This bar is SELF ANCHORING, the DOVETAILED WEB holding it firmly in place EVERY INCH OF ITS LENGTH, requiring no clips, bolts or wires at intervals, allowing buckling or expansion, causing loosening of curved plates or other devices, which form no permanent protection to the Curb. This bar presents a RESISTING DEPTH of nearly AN INCH OF SOLID STEEL, at any possible point of impact, as compared with other devices using seldom more than one-eighth of an inch of resisting surface.

It has a record of ten years' use without failure when laid in accordance with our printed directions, which will be sent to any engineer or contractor who desires them.

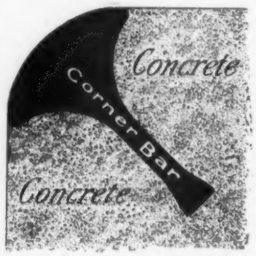


This bar has been in public use for more than ten years as the main feature of the

WAINWRIGHT STEEL-BOUND CONCRETE CURB

ABSOLUTELY NON-BREAKABLE

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GALVANIZED STEEL CORNER BAR prevents Chipping or Breaking on Edges

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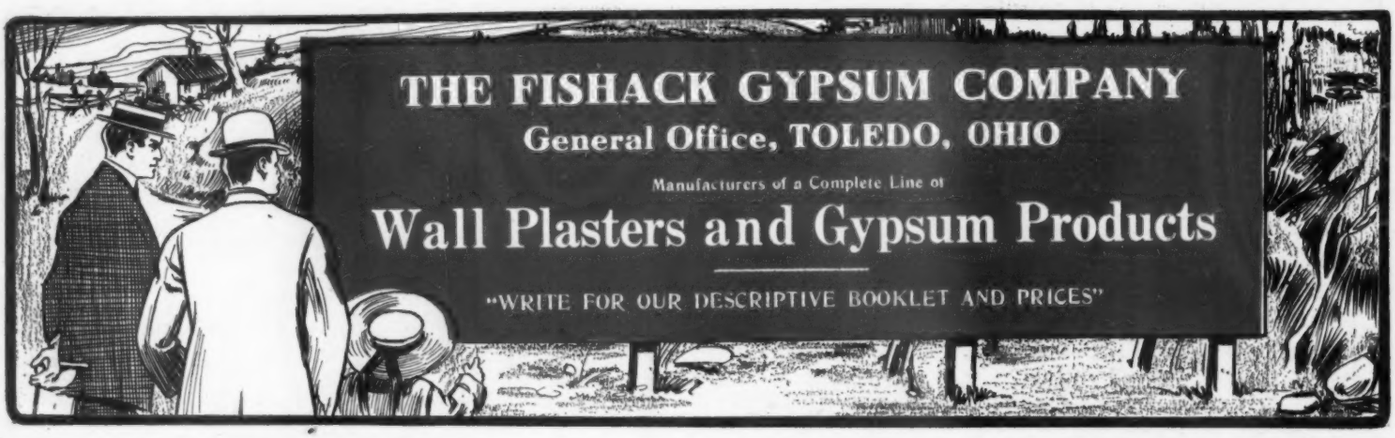
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Remember the dates of the three great cement shows:

New York—Madison Square Garden, January 21-February 3, 1912.

Chicago—Coliseum, February 21-28, 1912.

Kansas City—Convention Hall, March 14-21, 1912.

KANSAS CITY SHOW.

Convention Hall Selected For the First Annual Cement Show in the "Show Me" Town.

The holding of the First Annual Kansas City Cement Show by the Cement Products Exhibition Company, in Convention hall, in Kansas City, recalls a notable achievement in building construction connected with this famous building.

The old Convention hall, one of the largest public halls in America, was destroyed by fire in Kansas City on April 4, 1900. Largely by reason of the fact that it possessed such a splendid building, Kansas City had been able to secure the promise that the Democratic national convention, to nominate candidates for president and vice-president, should be held in the hall beginning July 4, 1900.

When the news flashed over the country that Convention hall was in flames it was at once supposed that Kansas City would have to abandon all thought of entertaining the Democratic national convention. The other cities, which had striven for the honor of securing the convention, at once began to resume their efforts along that line. They did not reckon, however, with the progressive Kansas City business men, who, even while the hall was in flames, went to work to secure funds to erect a new building. In less than three hours after the fire was discovered more than $20,000 had been contributed to the fund for rebuilding. It was felt that the good name of Kansas City was at stake and as the city pledged itself to entertain the Democratic convention, its pledges should be kept on their part.

While the flames were at their hottest telegrams were sent to the great iron, steel and lumber companies asking if they could duplicate the material which they had furnished for the original building. The insurance companies, which had policies amounting to $150,000 on the original building, came to the rescue quickly and paid their claims at once and in full. The question of having the hall ready for the Democratic convention was not one of money but of ability of man and material to accomplish a gigantic task in such brief time. Day and night, week days and Sundays, the work proceeded and the result was that on the morning of July 4, 1900, just ninety days from the date of the fire, the new Convention hall was opened by the Democratic National Convention.

In the face of the necessity of having the structure completed in ninety days, there had not been any opportunity of drawing new plans for the building, but as the work progressed many changes were made in the interior arrangements of the new hall. There was a decided change in the nature of the materials used for the new building and the wooden floors, balcony supports and roof had given place to floors of concrete, supports of steel and a roof of tile. Everything of a combustible nature which could possibly be omitted from the building was eliminated and the new Convention hall is thoroughly of fire proof construction. The dimensions of the building are 198x314 feet. On the main floor there are 17,750 square feet of surface. The entire floor is built of concrete laid on solid ground.

Since its completion in 1900 the new Convention hall has been the scene of scores of political conventions, social gatherings, industrial exhibitions and theatrical productions. It has been used for horse shows, flower shows, skating rink, dances, grand opera, automobile and other trade exhibitions and dramatic and musical performances. To this list is now to be added a Cement show. Convention hall has heard Melba, Nordica, Gadski, Sembrich, Eames, Caruso and Patti. Paderewski has played there. Wm. J. Bryan was nominated for President there—America's foremost men have addressed audiences exceeding 20,000 in Convention hall.

It is especially appropriate that Convention hall should have been selected by the Cement Products Exhibition Company for its Kansas City Cement Show. The New York and Chicago exhibitions are held in Madison Square Garden and the Coliseum, respectively. Both of these buildings have played conspicuous roles in the history of the country. Convention hall in Kansas City will not suffer by comparison with either the Garden or the Coliseum in historic interest or in practical utility for the purpose of holding a Cement show.

IMPORTANT CHANGE IN RULES.

Two important changes in the rules and regulations governing the New York, Chicago and Kansas City Cement Shows, held by the Cement Products Exhibition Company, should be noted by the exhibitors.

One relates to the display of signs in exhibits. Some misunderstanding has existed in the past in regard to the rule applying to the display of signs and a new provision is embodied in the rules for the coming shows which will undoubtedly meet with the general approval of all concerned.

The management agrees to furnish for each exhibitor one large sign containing the exhibitor's name, address and one extra line describing the material exhibited. These large signs will be of uniform size, color and style. If additional signs are desired for any reason by the exhibitor, they may be procured by applying at the office of the management, who will undertake to furnish those signs free of extra cost. In the past the exhibitors have been obliged to buy their own signs from outside sign painters. With the new arrangement signs are furnished to the exhibitors by the management without cost. This liberal arrangement will undoubtedly remedy a difficulty which has caused considerable embarrassment in the past to both the exhibitors and the management.

The other important change in the rules is that exhibitors' reduced rate tickets will be sold at 35 cents each instead of 25 cents each, as has been the case in the past. However, the rule provides that for all tickets of this kind not collected at the entrance a refund will be made to the exhibitor at the rate of 35 cents each. At past shows it has been the practice of the exhibitors to purchase reduced rate tickets for their customers and friends and to distribute them quite freely, with the result that a large proportion of them, in some cases as high as 45 and 50 per cent, were not turned in at the door at all. Under the new plan the exhibitor will not be obliged to pay for such tickets as are distributed and not used. They will need to pay only for those which their customers and friends actually present to the ticket taker at the door. This is a provision which will undoubtedly meet with the favor of the exhibitors.

F. E. GUY TRAFFIC MANAGER.

The Cement Products Exhibition Company, 72 West Adams street, Chicago, has taken a step in the right direction in appointing F. E. Guy, Frick Building, Pittsburg, as traffic manager. Mr. Guy is an expert in transportation matters and should be of great assistance to the exhibitors and to the management in looking after and advising as to the shipping, routing, rating and delivering of exhibits, securing reduced rates from the railroads, and so on.

Considerable difficulty has been experienced in past exhibitions by the exhibitors in shipping their exhibits so as to arrive at their destination in time for the opening of the shows at the lowest rates and with the least amount of trouble. This is particularly true of New York on account of the congested and complicated freight handling conditions in that district.

It is the intention of the Cement Products Exhibition Company to fully inform the exhibitors at the cement shows as to the service Mr. Guy is prepared to render in looking after the consigning, routing, shipping and delivering of material for exhibition at the cement shows.

TO BE IN MADISON SQUARE GARDEN.

The Cement Products Exhibition Company has assured the prospective exhibitors at the New York Cement Show that the sale of Madison Square Garden will not affect the holding of the New York exhibition in this building. While most of the reports which have been circulated during the last three years that Madison Square Garden was to be demolished seem to be untrue, it is a fact that a New York syndicate has recently arranged to purchase the building with the intention of erecting a big office building in its place. The contract for the purchase of the property, however, will not become operative until about March 1, 1912, which is several weeks after the dates set for the New York exhibition.

The coming show will be the last time the cement gathering will be held in the celebrated old structure on Madison avenue and 27th street.

PITTSBURGH CONCRETE NEWS.

Pittsburgh, August 18.—A few very nice jobs of concrete work have been figured here within the past month. Most of them were in other cities or towns and most of them were let also to outside firms. Pitttsburgh concerns contend that at the prices at which some of these jobs were bid off they don't want the work, especially where it is river and harbor work. Competition is very keen on all projects. In the way of reinforced concrete buildings there has been nothing of importance on the boards here for a month, but it is expected that there will be several jobs of this kind up for bids soon on the North Side as soon as the street raising is completed.

Irvin & Witherow have the big reinforced concrete shops of the Morgantown & Kingwood Railroad Company at Morgantown, W. Va., nearly completed. This firm also got the contract for the four-story reinforced concrete building of the Palace Furniture & Piano Company at Clarksburg, W. Va., recently.

The Pittsburgh Engineering Construction Company announces that things are, generally speaking, bad in Pittsburgh. The company has lately figured some very good work in Cleveland. Its officials say that prices are badly cut.

The big concrete mixing plant of the McCall's Ferry Power Company, on the Susquehanna River, near Elkton, Md., was burned a few days ago. It is expected that plans will be asked at once for a new plant.

The Cranford Construction Company has figured during the past six months over $2,000,000 worth of work, nearly all of it being in or near other large cities. It is now working on the Gilbert avenue viaduct in Cincinnati and is figuring on some good jobs in the south.

The H. J. Heinz Company recently let the contract to the Cummings Structural Concrete & Steel Company for quite a job of piling and wharf work at its immense plant on the Allegheny River.

The McArthur Company has secured the contract this week for a big job of concrete piling for the Westinghouse Machine Company at East Pittsburgh, Pa.

The Neville Concrete Company has been incorporated at Pittsburgh by Frank C. Sauer, Charles F. Buente, Edward P. Hippely and Edward M. Seibert to manufacture concrete flagging, curbing, etc.

A company has just been organized at West Middlesex, Pa., to manufacture a fire proofing material based on a new cement. It is claimed that this will excel Portland cement, as it is more elastic and has a greater tensile strength. It is the invention of K. C. Holm, a Danish chemist, and will be used largely in monolithic floors, wainscoting, artificial marble and tile and terrazzo work.

The Medford Concrete Company, of Medford, N. J., has been incorporated to manufacture concrete and cement blocks with a capital stock of $100,000. The incorporators are: S. M. Hinchman, F. A. Braddock, G. A. Haines and H. L. Knight, all of Medford, N. J.

The New York Preservative Company, of Manhattan, has been incorporated with a capital stock of $125,000 to manufacture preparations for preserving and hardening stone, cement, concrete, etc. The incorporators are M. H. Downing, B. H. Snyder and B. D. Phillips, all of New York City.

The Dolarway Paving Company, of Manhattan, has been incorporated with a capital stock of $50,000 to manufacture and deal in cement, concrete, etc. The incorporators are W. M. C. Watson, H. A. St. George and E. A. Darr, all of New York City.

A STONEKOTED HOUSE.

One of the show places of Hinsdale, Ill., is the residence of Dr. C. P. McConnell. The house stands in the center of a large lot and is much admired by all who visit the suburb. The house is finished on the exterior with Stonekote, the Portland exterior made and sold by the Garden City Sand Company, Chamber of Commerce building, Chicago. Those who have seen the McConnell house say it is one of the finest residences in the western suburbs on account of the beautiful effect produced by Stonekote.

For the information of the dealer and the user it may be said that Stonekote is a plastic Portland cement for rough cast and float surfaces. It is mixed in any desired tint. The Garden City Sand Company has a little booklet describing this product which should be in the hands of every dealer. It can be had for the asking. The book gives full information about Stonekote and information that will assist the dealer in making sales.

Concerning the methods of rough casting, the style used on the McConnell house, the booklet says:

"There are two sizes of quartz grains used in making Stonekote rough cast. It is essential that the rough cast material be mixed by the workman who is to do the throwing, mixed in the box from which it is to be thrown, or mixed in a clean pail, one pail at a time. Mix to a thin paste and then thin down until it will readily run off the paddle. When the material is taken on the paddle shake the paddle from side to side until a thin coating shows the grain as you would like to have it appear on the building. Throw breast first before side walls. Begin at the right-hand corner top. Throw from the paddle by stopping the paddle with a sharp jerk when it is near the wall. This will deposit all that is on the paddle scattered. Throw paddle after paddle as near as they can be thrown without overlapping. When two or three yards are covered go over the surface again, picking in where needed to make a complete level rough covering. Work the top and bottom, for scaffold joinings will show. See that no green material is joined with that which has become dry, as joinings will show. Your work around steps and all patches should be allowed to dry out before rough casting over them, as a lighter surface will show where the wet backing is covered."



RESIDENCE OF DR. McCONNELL, HINSDALE, ILL., WITH EXTERIOR OF STONEKOTE.

CONCRETE IN THE PANAMA CANAL.

The total amount of concrete placed in the Panama Canal during July was 129,727 cubic yards, against 104,914 cubic yards during the preceding month. The excavation work is decreasing as the amount of concrete being used increases, and it is only a question of months until the concrete put in will exceed the excavation.

MODERATE PRICED.

Concrete Homes Erected For the Employes of a Portland Cement Company Attract Attention of Experts.

One phase of the concrete block industry that has not received the attention it should is the building of small moderate cost or low cost houses. The rank and file of the block industry have reached out for the more costly and more elaborate structures. The fact has been forgotten that the man with a small amount of money wants a home for his family just as much as his more fortunate neighbor. There is a great field for the block man who with the coöperation of the architect will go after "the little fellow." The small five room house does not represent so very much of itself, but in the aggregate, if all who want small houses were supplied, it would mean the consumption of great quantities of blocks.

We have the pleasure of showing herewith, through the courtesy of J. E. Zahn, secretary-treasurer of the United States Portland Cement Company, Denver, Colo., the pictures of a number of four and five room block houses recently constructed at Concrete, where the company's plant is located. The company built there for the use of employes eight four room and four five room houses, twelve in all, at a cost of $18,000 or $1,500 each. The houses have buffets built in, are equipped with steel ranges and hot water tanks, porcelain baths, toilets and washbowls, open nickel plumbing, all wired and equipped with electric light fixtures. Each house has a basement with concrete floor and concrete foundation. There is a concrete floor for front and back porches. The interior of the houses is finished with maple flooring and the walls are tastefully decorated.

The blocks for the houses were made at the company's mill on an Ideal block machine and a Kramer automatic tamper was used for the tamping. The mixture in the back of the blocks was a ⅛ mixture while the face, a half inch thick, was a ½ mixture. The mix was quite wet and when thoroughly cured the blocks could be cut with a mason's chisel.

The Medford Concrete Company has been incorporated at Medford, N. Y., with a capital stock of $100,000, to manufacture concrete blocks and engage in a general construction and contracting business. The incorporators are S. M. Rinchman, F. A. Braddock, G. A. Maines and H. L. Knight.

LOW COST CEMENT PLASTER HOUSES.

At Bogota, N. J., twelve miles from New York, an enterprising real estate man has built a large number of low cost cement plaster houses of six rooms. They are story and a half, which gives two good rooms up stairs and four down. With all modern improvements, including electric lights, gas and city water, these houses can be built for less than $2,000. The lot is included in this sum. The accompanying photograph gives a good idea of how the houses look singly and together in the row. They are picturesquely situated, looking out over a sort of park to the river and the hills beyond. It would be hard to conceive of anything more alluring for a workingman's home. And the sum required is not too large to be raised by the average worker who is getting fair wages. Moreover, in the building and loan he can pay for his home the same as rent and in a few years it is his own. He has paid no more than he would for rent during those years and the whole comes back to him at the close.

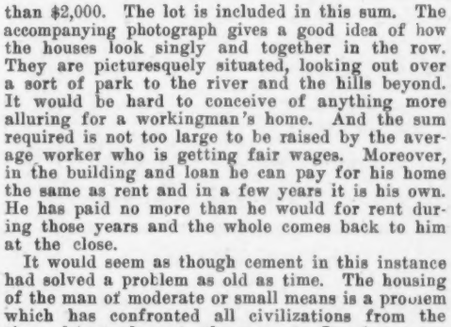


SIX ROOM CEMENT DWELLING AT BOGOTA, N. J.

It would seem as though cement in this instance had solved a problem as old as time. The housing of the man of moderate or small means is a problem which has confronted all civilizations from the time of tents down to the present. It offers something cheap, something that looks well and something that will withstand the wear and tear of time and the elements. Those are the essentials. These little houses are indicative of the possibilities. They are worth the serious study of others who want to do something along the same line.

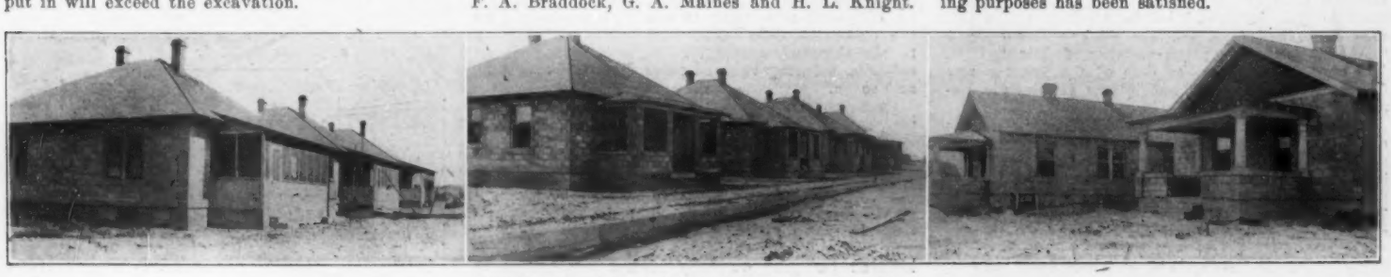
FENCE OF CONCRETE BLOCKS.

The accompanying photograph shows a view of a very attractive fence around the residence of W. A. Wheeler, manufacturer of concrete building blocks, Atkinson, Neb. The fence is constructed of concrete blocks of Mr. Wheeler's own manufacture and is about the most attractive work in the city.

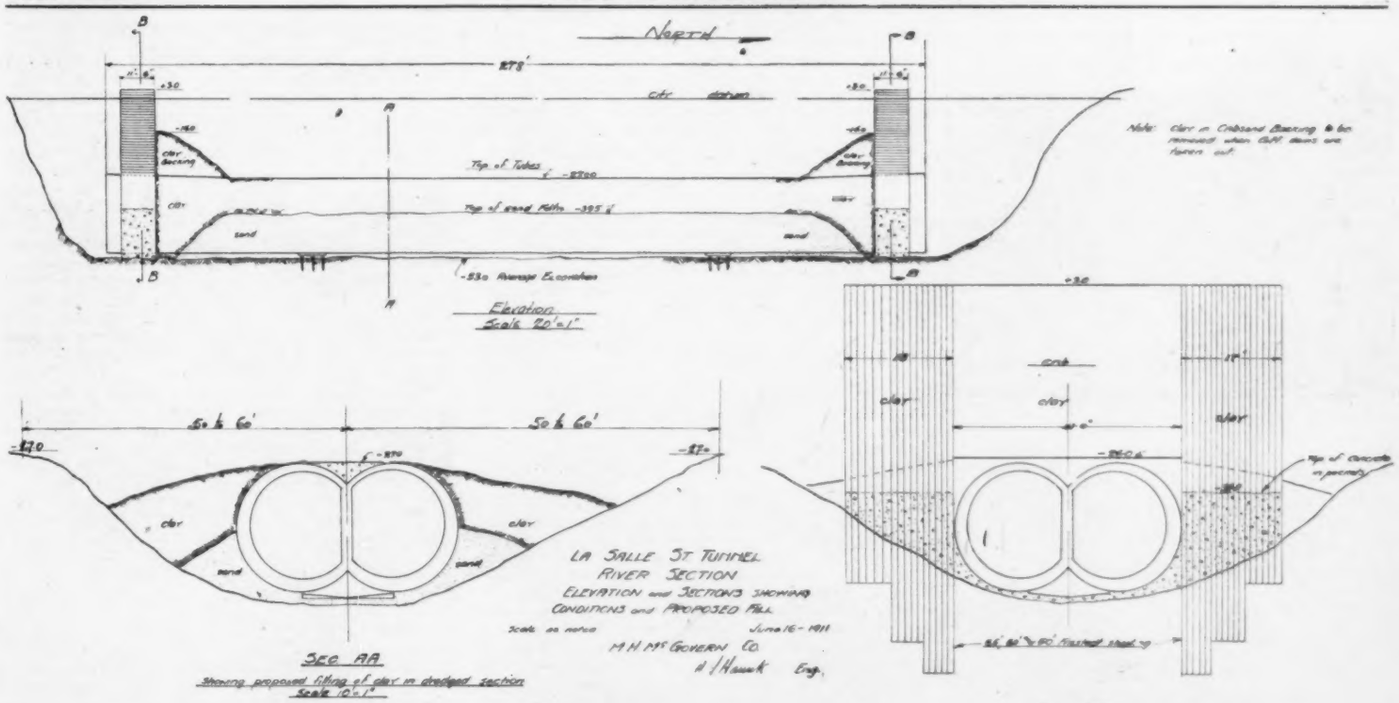


ATTRACTIVE CONCRETE BLOCK FENCE ERECTED BY W. A. WHEELER, ATKINSON, NEB.

Mr. Wheeler writes that these blocks are gaining wide favor in his vicinity and that everyone who has ever used the concrete block for building purposes has been satisfied.



LOW COST BLOCK HOUSES AT CONCRETE, COLO.



CONCRETE WORK IN LA SALLE TUNNEL.

(Continued From Page 3.)

pendent upon the rapidity with which the mixed product is taken away from the mixer. By the use of the pneumatic mixer this expense is almost entirely eliminated, and the progress of the work is dependent only on the rapidity in which the charges are introduced into the machine. The actual mixing and conveying of the batch through 300 feet of pipe consumes less than ten seconds of time. This seems astounding to the man who has been accustomed to the old methods. With this machine even a novice can mix and convey easily 100 cubic yards of concrete a day. Nor does it make any difference in what direction the pipe may run or how many turns may be in it, the discharge is just as effective, as was demonstrated in the La Salle street tunnel.

Without some method of this kind the work of depositing the concrete on the inside of the steel tubes of the La Salle street tunnel would have been most difficult and expensive. There was no opportunity for dumping into the forms from the top and the only access to the forms was lateral. It was at first figured that a chain of men would enter the space between the tube and the top of the form and pass buckets along, one to the other. This would have cost $25 a yard. By using the pneumatic mixer the work was easily done at a cost of 25 cents a yard. The mixer was installed on the dock at the north end of the tunnel tube and the pipe with many turns in it, was laid in a day by four men into the tubes and the machine was started, depositing each charge perfectly. There was great saving in the cost of installing the plant, as the pipe line takes the place of all other apparatus. There was also a great saving in the cost of dismantling.

The machine consists of a cast iron egg-shaped receiver, which is filled from above by a hopper through an air-tight intake valve. The dry materials, sand, stone and cement, and, finally, the proper amount of water, intermingle to a certain extent in passing the valve. The bottom of the receiver terminates in a 6 to 10-inch elbow flanged for connection with the pipe through which the concrete is conveyed to the place of deposit. There are two connections for the admission of compressed air, one just below the inlet valve and another opening into the terminating elbow.

To operate the machine the material is placed in the receiver and the intake valve closed, thus sealing it at the top. Compressed air under a pressure of 40 to 60 pounds per square inch is admitted by opening a valve. The air coming through at the top forces the material toward the elbow, and the air entering the elbow, escaping through the pipe line at a speed of 1,000 to 2,000 feet per second, hits the material and produces in it by the impact an initial velocity of 30 to 40 feet per second. As the material travels in the pipe line it is mixed with nearly double its volume of air, which reduces considerably the frictional resistance of the pipe line. To empty the receiver into the pipe line takes from 1 to 2 seconds, and inasmuch as the materials travel with different velocities owing to the difference in their size, surface and specific gravity, and to the varitable amount of friction in the outer and inner portions of the cross-section of the pipe, a thorough mixing is accomplished.

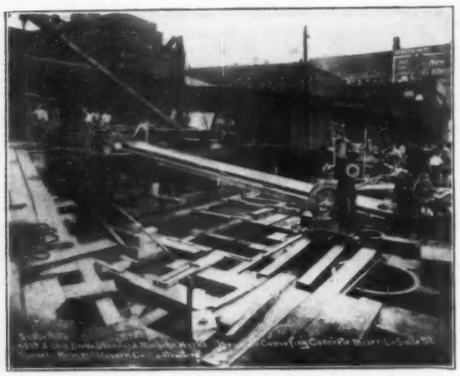
Experiments have been conducted by the inventor in making lime and cement mortars, which are particularly hard to mix in a batch mixer. To the mortar aggregate and also to ordinary concrete material were added small portions of a dry mortar stain. After being shot through the machine, the mortar or concrete presents an absolutely uniform color and a thorough mixture is obtained. The machine mixes the materials just as quickly and thoroughly whether no water, very little or a great amount of water is used.



METHODS OF REINFORCEMENT OF ARCHES.



FORMS AND REINFORCING STEEL FOR ARCHES AND WALL.

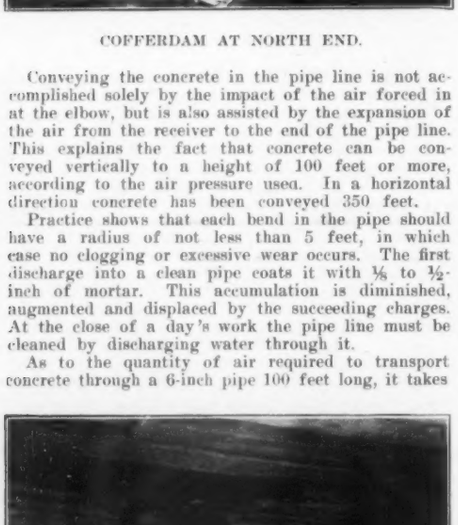


COFFERDAM AT NORTH END.

Conveying the concrete in the pipe line is not accomplished solely by the impact of the air forced in at the elbow, but is also assisted by the expansion of the air from the receiver to the end of the pipe line. This explains the fact that concrete can be conveyed vertically to a height of 100 feet or more, according to the air pressure used. In a horizontal direction concrete has been conveyed 350 feet.

Practice shows that each bend in the pipe should have a radius of not less than 5 feet, in which case no clogging or excessive wear occurs. The first discharge into a clean pipe coats it with ⅛ to ½-inch of mortar. This accumulation is diminished, augmented and displaced by the succeeding charges. At the close of a day's work the pipe line must be cleaned by discharging water through it.

As to the quantity of air required to transport concrete through a 6-inch pipe 100 feet long, it takes



SHOWING THE PNEUMATIC MIXER.

about 5 to 6 cubic feet of free air for every cubic foot of concrete, and probably half as much more for every additional 100 feet of pipe line.

The machine was used on the bridge piers of the Harvard-Dennison viaduct, Cleveland, Ohio, built in 1909 by the Concrete Steel Construction Company, of Pittsburg. In this case the concrete was conveyed from a pneumatic mixer through an 8-inch pipe to an elevation of 80 feet and air was used under a pressure of 35 to 45 pounds per square inch.

On the La Salle street tunnel work one of the machines was used recently to pump grout under 52 feet of water into broken stone laid inside cofferdams built over the ends of the tunnel tubes. Before dumping the loose rock into the cofferdam 2-inch pipes were secured in place vertically about 4 feet apart over the area of the dam. Their lower ends were imbedded in the loose rock and extended to within 6 inches of the bottom of the cofferdam. Connection to the conveying pipe was made with a hose pipe. Two 8-ft. layers were grouted in this way. Grout was also forced under the tubes a horizontal distance of 27 feet. Later the same machine was rigged to convey concrete down into the tunnel tubes and discharge the concrete into the crown of the tunnel arch, a maximum horizontal distance from the mixer of 290 feet and a drop of 35 feet.

Chester T. Drake, head of the Drake Machinery Company, who owns the rights for the pneumatic mixer, is well known in the cement industry, having been identified with it for many years as a manufacturer of mixers.

H. H. Hanink, engineer in charge for the M. H. McGovern Company, is a graduate of the engineering department of the University of Michigan.

In the construction of the cofferdams on the land portions of the tunnel, U. S. sheathing was used, while on the river section Friestedt sheathing was used. The sheathing on the land section was 60 feet in length and was driven with a pile driver. The two lines of this interlocking sheathing safeguard the surrounding buildings in La Salle street during the operations and no injury resulted. McCormick waterproofing was used throughout the tunnel, being prepared in a separate plant erected for the purpose. Engineer Hanink declares this waterproofing is perfect in its action and comes up fully to what the manufacturers claim for it.

LOUISVILLE CONCRETE NEWS.

Louisville, Ky., Aug. 15.—"It took a really big building boom to determine the high status of concrete and concrete blocks as a building material in Louisville," says the concrete working trade, descriptive of the prevalent situation in the Gateway City. For the present, building boom is working wonders for the benefit of the mix interests. Of course the big skyscrapers that are in view are all demanding concrete foundations, and extensive work along this line has already been begun, but there are also extremely gratifying developments in the way of concrete residence and general business construction.

"When a comparison is made at our plant we find that present activity is much better both as regards quality and quantity than it was this time last year," said R. C. Culley, of the Culley Cement Block Company, in this city. "The steady increase is very gratifying and the prospect at present is so auspicious that we are figuring on the installation of two new mixers and an additional area of sand beds, so that our capacity will be increased about one-fourth of its present size."

The Tycrete-Concrete Company, recently organized in Louisville to manufacture and sell a concrete block for building purposes, has completed the erection of its plant and is now running a limited amount of machinery in producing, the capacity to be increased as rapidly as the installation of more mechanical equipment can be provided for. The Tycrete-Concrete plant is located at Fourteenth and Oak streets and is one of the most modern establishments for the manufacture of building blocks. Electrical equipment has beeen installed throughout to operate mixers and other machinery. The concern is marketing two styles of block, suitably measured to conform with the building regulations regarding wall thicknesses in Louisville. One of the blocks measures 8 by 12 by 16 inches, while the other measures 8 by 8 by 16 inches. The first contract secured by the company was a $5,000 job for the erection of new local offices for the Atlas Coal Company at the Atlas yard. The officers of the new concern are as follows: C. D. Moody, president; Arthur M. Rutledge, vice-president, and H. A. Collins, secretary-treasurer and general manager.

The Unit Brick & Tile Company, according to L. Stokes, has placed contracts for every bit of stock it has on hand and is running on an easy schedule to supplement this large amount of supplies when needed. To facilitate the handling of raw materials with maximum speed and minimum expense the plant was recently equipped with a system of Caldwell conveyors. Among the Unit company's jobs are the following: The Bank of Hardinsburg at Hardinsburg, Ky., an apartment house at Henderson, Ky., an up-to-date drug store at Holton, Ind., and a big structure for the Bluegrass Produce Company at Carlisle, Ky.

The National Roofing & Supply Company is doing a-plenty in its concrete construction department, according to Edward Streicher. One of the most important jobs being handled by this company calls for about $10,000 worth of concrete work on the new George Rogers Clark school on Payne street in Louisville.

Work is now being begun upon six new concrete bridges along the Bloomfield turnpike between that city and Bardstown, Ky. The contracts for this work were awarded some time ago to the Capitol Construction Company, of Columbus, O., but owing to unavoidable delays in the delivery of material for the various jobs active construction could not be started until last week. The bridges, although small, will consume considerable concrete, and will be of the latest structural design, to be completed as rapidly as the work can be rushed through.

The first concrete bridge in Franklin county, Kentucky, was contracted for a short time ago by the fiscal court of that county. Gormley Bros., of Versailles, Ky., secured the contract with a bid of approximately $5,600. The bridge is to span Elkhorn Creek, near Peak's Mill, and will be of the latest type of construction, with the main span 196 feet long.

The Home Milling Company was recently formed at Greenville, Ky., to establish and operate one of the first flour mills constructed entirely of concrete in this section of the state. The mill itself will be three stories high, with a basement, and will measure 30 by 40 feet in dimension. It will be constructed of reinforced concrete, work to be begun in the very near future.

W. C. Mann, a well known concrete worker of Madisonville, Ky., is deriving a lot of business from a special line of concrete vaults which he manufactures. Mr. Mann calls his product "The Standard" burial vault and describes it as the neatest and most substantial tomb made. The top is a solid arched piece and the corners are reinforced, so that the piece is as solid and enduring as the ages. Mr. Mann devised a novel demonstration of the imperviousness of his piece by suspending a large doll, neatly dressed and contained in a casket within the concrete vault, down into a pool of water in the window of his establishment, with absolutely no detriment to the doll.

NEW YORK CONCRETE NEWS.

New York, August 16.—All the bids received for the construction of the twenty-one reinforced concrete firehouses in the various boroughs of the city, which were opened Monday, July 31, have been rejected. Only five construction companies bid, and five houses were not bid on at all. Only twenty-four separate bids were received, and in no case were there more than two bids on one house. In all but four cases the bids exceeded the appropriation for construction.

For these reasons Joseph Johnson, Jr., Fire Commissioner, decided to throw out all the bids and readvertise. The Commissioner has assigned Farley, Deputy Fire Commissioner of Brooklyn, to go over the specifications with the architects who drew the plans, to try to determine what the trouble was.

The Bush Terminal Company is about to begin the construction of another loft building on its property in South Brooklyn, where its "Industrial Colony" now consists of eight factory structures. The building for which ground will be broken on Monday is at 40th street and Second avenue. Its sister building is fast nearing completion. The new building, like No. 19, will be a reinforced concrete eight-story structure, two floors higher than the rest of the lofts.

The Turner Construction Company of 11 Broadway, New York City, has received the general contract to construct the reinforced concrete factory building for Wallace & Company at Washington and Park avenues, Brooklyn, N. Y., six stories in height, 100x118 feet. The architect is Howard Chapman, 1123 Broadway, New York City.

The protests made by the committee composed of the following men: Irving T. Bush, president of the Bush Terminal Company; John Arbuckle, of Arbuckle Brothers; Benjamin W. Morris, of La Farge & Morris, architects; H. C. Turner, president of the Turner Construction Company, and William N. Beach, member of the legislative committee of the Association of American Portland Cement Manufacturers, and other concrete men, to Mayor Gaynor, had the desired effect against the adoption of the new building code which discriminated against the use of reinforced concrete and other building materials in favor of hollow tile.

The message was as follows:

To the Honorable the Board of Aldermen:

Gentlemen—Several committees have called upon me in reference to the differences of opinion whether hollow tile is better than concrete for building purposes, however high the building may go. I suggest that this matter be examined into very carefully and that no preference be given to either unless for undoubted reasons. I send this message to you so that the matter may be thoroughly gone over before the new building code is adopted, and I shall be ready to assist you in any way that I can. Respectfully,

W. J. Gaynor, Mayor.

Frank Dowling, Tammany leader in the Board of Aldermen, said that the proposed new building code would not be considered by the board until fall. In effect, he gave notice that the fight between hollow tile and concrete interests would remain in statu quo until then.

CONCRETE IN SUBURBS OF CHICAGO

Beautiful Examples of Concrete Plaster Houses in the Villages that Skirt the Western Metropolis on the North and Northwest.

Last month we had the pleasure of showing how cement is being used in the construction of residences in the western suburbs of Chicago. The western suburbs, although showing some of the most beautiful work in this part of the country, has no monopoly in this line, however, as will be seen. This month your attention is directed to the northern and northwestern residence districts, where many examples are to be found of beautiful cement houses.

It seems to be a charasteric of home builders in the suburbs to make the most of the use of large lots, and the result is a harmony between the design of the house itself and the surroundings. Shrubbery annd flower beds are so arranged that they seem to be a part of the house itself, and it is sometimes difficult to determine where the "indoors" leaves off and the "outdoors" begins.

Cement construction on the north shore of Chicago has had a severe test and has withstood it nobly. In the winter the bitter northeasters beat against the houses of this district, and if there is any weakness or fault either in material or construction Old Boreas finds it out. The proof that the cement house "is warmer in winter" is found here, for the occupants live in comfort while the storms are raging and howling outside, while those in less substantial houses are shivering, shoveling on more coal and piling on extra comforters on the beds.

From Evanston to Waukegan houses of this style are to be found varying in cost from $3,000 to $50,000.

Fig. 1 is the residence of C. W. Spofford, 2242 Orrington avenue. The architect was E. O. Blake, 621 Davis street, Evanston. The design is Moorish. The house has a tile roof and the exterior finish is in cement plaster on lath, a finish of cement plaster being used over a scratch coat of lime mortar. The house has given the best of satisfaction. There is also a little cement plaster bungalow owned by Miss Clara L. Wightman, of Glencoe. The little house stands in the midst of the trees of that beautiful suburb and is much admired. A feature of this house is the sun parlor to be seen at the right.



FIG. 1—RESIDENCE OF C. W. SPOFFORD IN EVANSTON.

Fig. 2 is the beautiful residence of W. Foster Burns, at 838 Sheridan road. The exterior of this house was given a smooth finish by troweling the cement mortar. The residence is given a strikingly fine appearance by the use of a very dark brown stain on the window frames.



FIG. 2—W. FOSTER BURNS' RESIDENCE ON SHERIDAN ROAD.

The cement houses shown on these pages will form excellent suggestions for the dealer to show to customers who are thinking of building a home. The process of building a cement house differs in no respect, so far as the frame is concerned, from a house of wood. The exterior, however, is finished in this fashion: Over the sheathing is placed tar paper. This is furred over the studs with inch thick strips. The lathing is then done and the first coat, a lime mortar, is put on. Before it is dry the surface is scratched criss-cross to make a holding surface for the final coat of cement mortar, one part cement and two of clean sharp sand. The finish is either smooth, being troweled, or it may have a pebble dash, the pebbles, of uniform size, being mixed with the mortar and thrown on. Cement workers say that the amount of water in the various mixes of cement mortar must be exactly alike in proportion to assure a uniform color. Any variation in the amount of water used will cause a blotchy appearance.

A number of moderate cost houses have been built recently at Desplaines Manor, on the Northwestern, that exemplify the economy of using cement in home building. Some of these houses are of combination frame and cement plaster. Some very beautiful effects have been produced in this manner. We are able to show these houses through the courtesy of W. F. Kaiser & Co., Fort Dearborn Bank Building, who are the agents for the property.

Fig. 3 shows a house on a lot 85 by 180 feet, of cement plaster construction, with paneled gable. This house contains seven rooms. It is finished inside with oak, maple and birch and has a beam ceiling in the dining room. The foundation is solid concrete and the basement has a cement floor. In the rear of the house, not shown in the picture, is a concrete garage and cement driveway. The house is on a corner lot at Prairie and Parsons avenues, in Desplaines Manor.

Fig. 4 shows a house on Laurel avenue in the same suburb that also has the advantage of extensive grounds. It contains seven rooms and two alcoves. This house has a beamed ceiling in the dining room and a large open fireplace in the parlor.

Fig. 5 is a square house of simple design, and pleasing on that account. It has seven rooms and a reception hall. The design is one familiar as a type common in the suburbs. The pillars and foundation of the broad porch are also of cement.

Fig. 6 presents a more elaborate house, the plain exterior of the front being relieved by the panels in the gable. This house, like the others, has every modern convenience.

There is also in this suburb a fine house on Webford avenue. One of the features of this house is the enclosed porch. The arrangement of the windows under the eaves also adds to the good appearance of the residence. The first story has an exterior of siding, while the foundation up to the water table, and the second story, are of rough cast cement plaster.

All these houses have seven-foot basements under the whole house, the walls of the basement being solid concrete with smooth finish inside and out. The cement floors of the basements are six inches thick with drain tiles underneath and around the outside walls to the sewer. The water tables are all molded cement. The sheathing on all the houses is covered with Barrett's No. 2 roofing felt. The floors are lined with deafening felt.



FIG. 3—CEMENT PLASTER HOUSE AT DESPLAINES MANOR.



FIG. 4—SEVEN-ROOM CEMENT PLASTER HOUSE AT DESPLAINES MANOR.

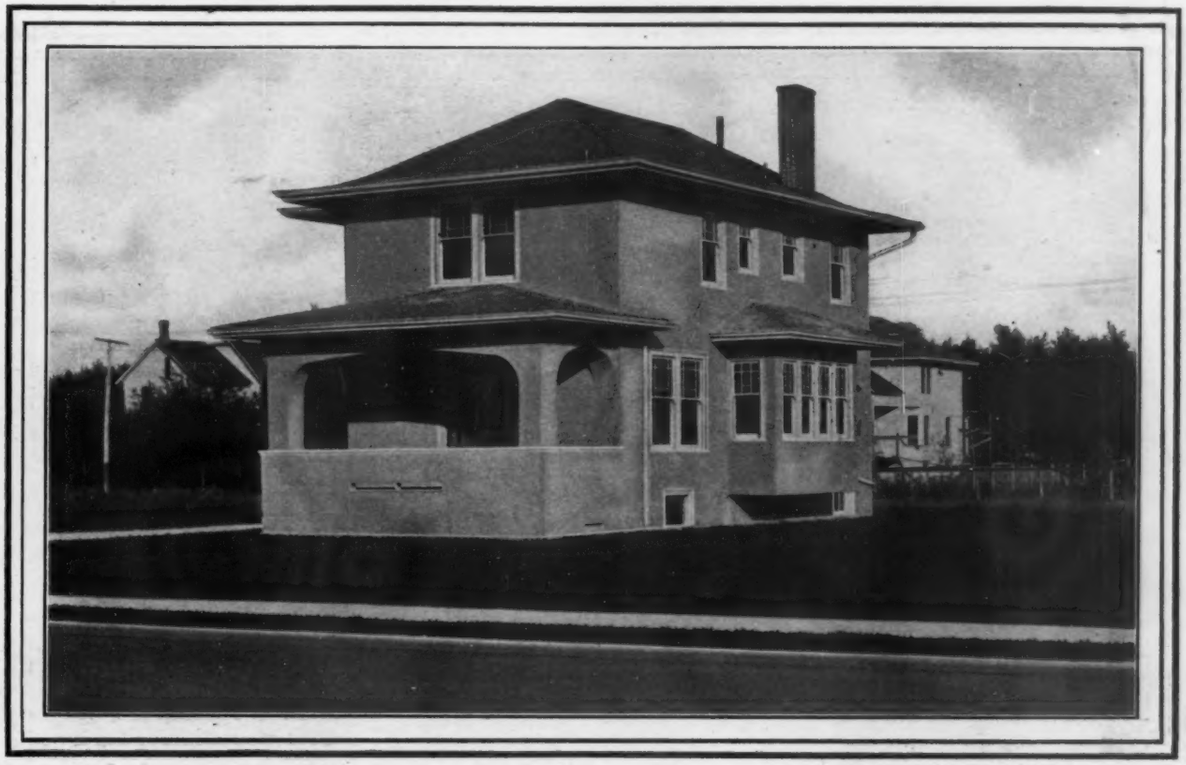


FIG. 5—CEMENT HOUSE OF SIMPLE DESIGN AT DESPLAINES MANOR.

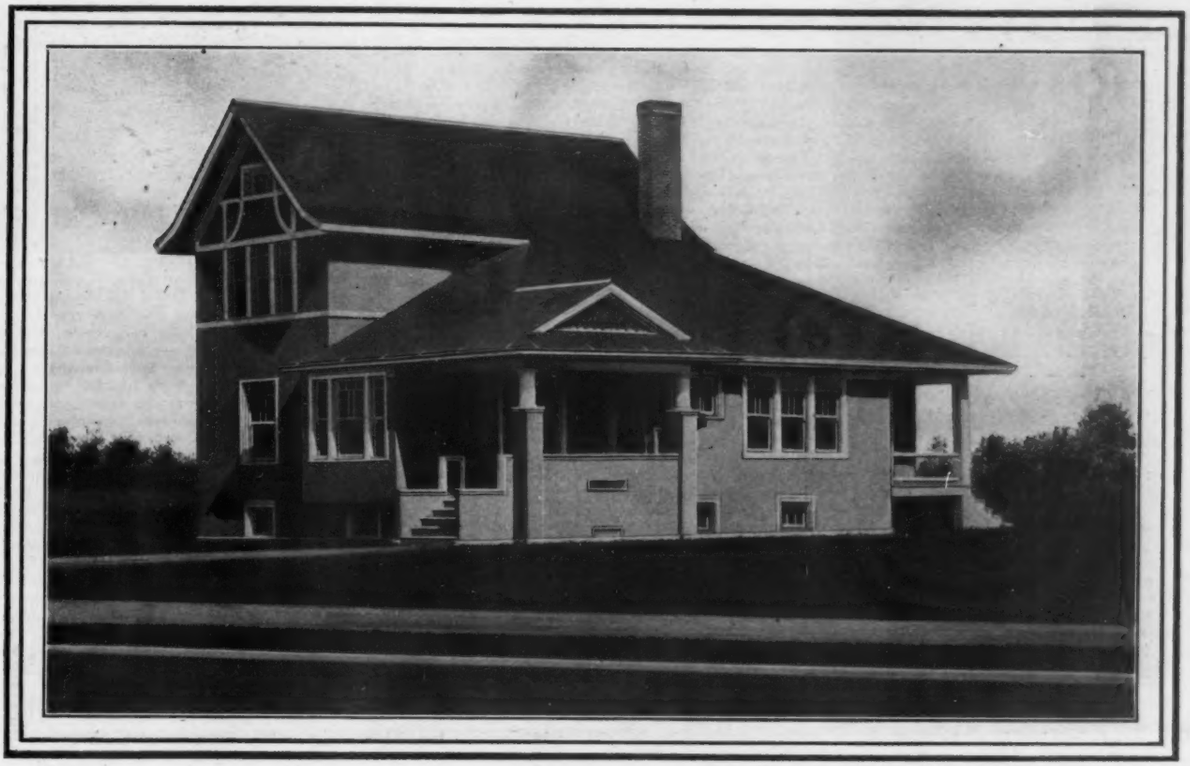
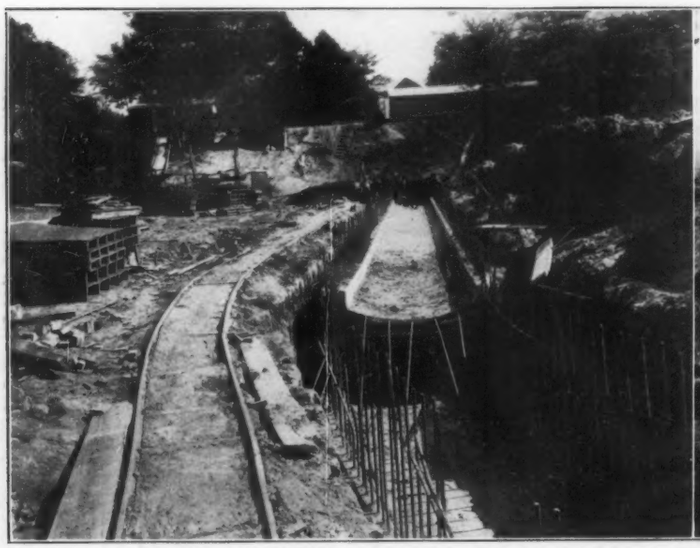


FIG. 6—CEMENT PLASTER HOUSE WITH PANELED GABLE.



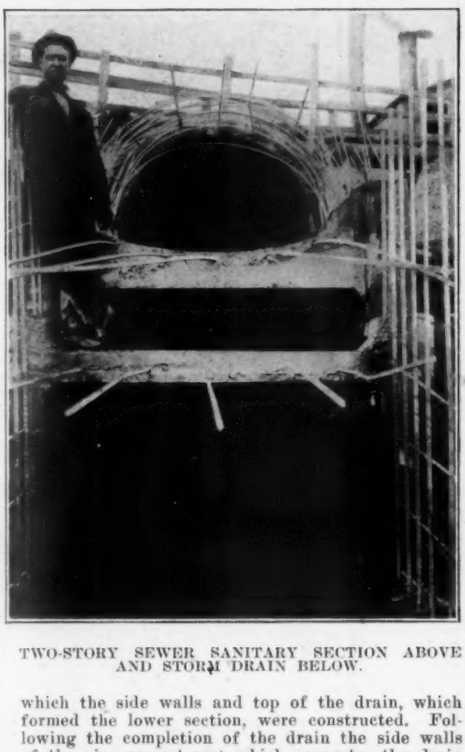
SHOWING CHARACTER OF WALL CONSTRUCTION.



METHOD OF REINFORCING.



NORTHWESTERN TRUNK SEWER—PILES DRIVEN AND IN PLACE.



TWO-STORY SEWER SANITARY SECTION ABOVE AND STORM DRAIN BELOW.

DOUBLE DECK

Concrete Sewers at Louisville Recently Completed Attract Attention of Engineers All Over the Country.

Concrete has played a big part in the construction of the $4,000,000 system of sewers which is now being completed at Louisville, Ky., practically all of the large work, as a matter of fact, having been accomplished with that material. As the Commissioners of Sewerage, under the direction of whom the work has been done, have let seventy-five contracts, involving the construction of sewers varying in diameter from 18 inches to 15.5 feet, and consuming nearly a quarter of a million barrels of cement, it is evident that the project has been of considerable importance to cement and concrete interests.

Probably the most interesting sewer of the system, from a construction standpoint, is the northeastern trunk, which has just been finished. It is out of the ordinary because of the fact that it consists of three parts, a storm drain, an air compartment and the sewer proper composing the structure, which rests, of course, upon a single foundation.

The northeastern trunk empties into the Beargrass interceptor, one of the largest sewers built by the commission. It flows westwardly, draining a large part of Louisville known as Crescent Hill. Leaving the Beargrass interceptor at a point near the entrance of the northeastern trunk is a storm drain, which is intended to carry off the storm water from the surrounding territory. It flows eastwardly into Beargrass creek.

The construction of the two sewers in one piece had not been contemplated before consideration of the local conditions were made. Then it was found that the character of the soil was exceedingly unfavorable, being largely of a mucky description, which made excavation difficult and caused pumps to be used during a large part of the time that work was in progress. It was therefore seen that piles would have to be driven, in order to provide a proper foundation for the concrete, which had been specified for the sewer, and as the cost of driving these was considerable, the plan of constructing the two together was worked out by Chief Engineer J. B. F. Breed and Consulting Engineer Harrison P. Eddy, of Boston.

The northeastern trunk sewer is 5,635 feet long, and the drain is 4,230 feet long. The maximum height over all is 14 feet 2 inches, the drain, which forms the sub-structure, being 6 feet by 4 feet 9 inches, the form being a rectangular section with a dished invert. The sanitary sewer above it is 5 feet 7½ inches by 4 feet. The intervening air chamber is of various dimensions, since, as pointed out above, the sewer and the drain flow in opposite directions and the distance between the two become greater in direct proportion as the distance from the Beargrass interceptor increases.

The walls of the sewer are 12 inches thick. The reinforcing of the side walls, on account of the unusually heavy load carried, was by ¾-inch bars, laid vertically, while the remainder of the structure was reinforced with ½-inch bars. The spacing was 9 and 12 inches on centers, depending on the location of the bars. Johnson corrugated steel bars were used in the reinforcing.

In driving the piles a variety of earth was encountered, some of it, as indicated, being soft and mucky, while gravel was struck at other points. Eighteen-foot oak piles were driven, a Vulcan steam hammer weighing 3,000 pounds and having a 36-inch stroke being employed. The piles were cut off after being driven at an elevation of three inches above sub-grade. The piles were driven in bents of three, and were spaced three feet on centers.

At certain points, where the sewer separates from the drain, it is at an elevation above the level of the ground water. The danger of the piles being rotted by exposure made it necessary to protect them by the construction of a concrete pier over the piles, extending to the underside of the sewer invert. These piers were twenty-four inches wide and fifty inches center to center. The concrete was laid without reinforcing.

The concrete was mixed by a stationary Ransome mixer, and was carried to the work in cars run on a portable track. Hoppers were used for handling the material when possible, while at less favorable points wheelbarrows were used for conveying it to the mixer.

The materials used were Kosmos Portland cement and Ohio river sand and gravel, the mix being in the proportions of one, two and five, although this varied somewhat, depending upon the size of the gravel.

The invert of the sewer was built first, after which the side walls and top of the drain, which formed the lower section, were constructed. Following the completion of the drain the side walls of the air compartment which separates the drain from the sanitary sewer were built, and after their completion the concrete was placed in the arch of the sewer. Wooden forms were used on the work, except in the case of the centers, for the sewer arch, Blaw steel centers being utilized for this purpose.

On account of the grade of the northwestern trunk, which passes under Beargrass creek, not being sufficient, a siphon was constructed. This is 815 feet long and consists of 18- and 30-inch vitrified pipe, encased in concrete. This was another unusual feature of this work.

The construction of the sewer, which was completed in four months, has entailed an expenditure of $150,000. The Blackstaff Engineering Company, of Philadelphia, was awarded the contract for the work. Owing to the unusual nature of the construction, it attracted great attention, and Chief Engineer Breed has received many inquiries relating to his "two-story" sewer.

The sewer project in Louisville, as a whole, has been the subject of interest because of the fact that concrete was used almost exclusively. The question was raised as to the possible effect on the structure of acids in the sewage, but this was disposed of when it was shown, by a series of tests extending over a long period, that the prevailing character of the Louisville sewage is alkaline.

CHARLES RIVER BRIDGE.

This Stately and Ornamental Structure of Reinforced Concrete is a Masterpiece of Its Kind.

A fine example of reinforced concrete bridge construction is the new bridge over the Charles river at Boston, now nearing completion. It is situated beside and parallel to the Charles river dam, at the foot of Leaveret street, and extends to Lechmere Square, East Cambridge. It provides for the extension of the street car system via the subway, which ends at Haymarket square, near the North passenger station, to Cambridge.



CHARLES RIVER BRIDGE AT BOSTON, MASS.

The construction of this stately and ornamental bridge, one of the largest of its kind in the United States, is being done by the Holbrook, Cabot, Rollins Corporation, of Boston. It is becoming locally known as the "Roman" bridge on account of being a concrete analogue of the viaduct of blocks of tufa that once connected the Pons Æmilius with the Janiculum, a constructive work hardly less interesting in its suggestions of technical problems solved than that most imposing monument of Roman engineering, the Claudian aqueduct.

In laying the lower section, there was first driven down through the compact blue clay to bed rock a set of heavy wooden piles. Then, still deep in the mud below the level of the river bottom, was placed the form of the concrete base, protected from any inwashings of sea water by a coffer dam above. After this form had been filled and duly set there was placed over it the form of the core of the lower section of the pier proper, rising to the height of the dam, along the lower side of which the viaduct or bridge runs. Through the material of this middle portion of the pier run large economy holes, with the double purpose of economizing on materials and lightening the weight. The work of facing the exposed surfaces with granite was then undertaken, with the coffer dam still holding the sea water at bay.

Next followed the task of throwing the arch rims from pier to pier. In each space between the two piers piles were driven into the river bed. Over the piles the false work of the bridge was laid. A feature of this work was that the timbers were cut at the carpenter shop in East Cambridge, the idea being to utilize a few highly skilled men and marking the beams and cross pieces so plainly that ordinary workmen could put them in place. The filling of the space where the arch rim was to be cast with liquid concrete, by means of segmental boxes of wood, was then in order. In connection with this was the placing of steel rods, each three-quarters of an inch in diameter, to constitute the reinforcing.

Great care was taken in the process of putting the form of the arch rim into place. Each upright rested on a wooden plinth, across the bottom of which a section about a foot wide and an inch high was cut away so that the column stood on feet rather than on a base. When the arch rim was believed to be well set the outer portions of each plinth were sawed off, allowing the whole mass of false work to settle a little, but otherwise still in position to give support to the structure.

As soon as the form of the main arch was in place, the necessary accoutrements were employed for projecting the jack arches, the floor carrying transverse spans, whose feet rest upon the shoulders and flanks of the big span. Into each of these minor arches goes a medley of contracted steel rods, every twist of which is coincidental with some special strain.

The design of this Charles river viaduct, by Robert S. Peabody, president of the Boston Society of Architects, formerly president of the Institute of American Architects, and for several years past consulting architect of the Boston Elevated Company, contemplated giving a finishing touch of dignity and impressiveness to the lower basin. The series of arches, rising well above the highway on the dam, are not only imposing in and for themselves, but a valuable æsthetic effect is secured.

As stated, the bridge is a reinforced concrete structure resting on cut granite piers from the quarry at Chelmsford, from which place the crushed rock used for the concrete was procured. The incongruity between the appearance of the natural stone and the artificial stone was reduced to a minimum by skillful handling of the concrete. Both the dressed and the cast facings being the offspring of the same quarry, was a help in that direction and skilled workmen were employed to give the concrete spandrels, panels, etc., a rough, pointed finish. The cement was contracted for by the Boston Elevated Company and was principally the Atlas brand.

In the foundations it is estimated that about 25,600 yards of granite concrete were used, and in the superstructure about 12,000. In facing the piers some 4,000 yards of cut stone were employed. In building the false work, rather more than 1,000,000 board feet of timber were required. The steel reinforcements weigh over half a million pounds.

At the East Cambridge end the approach from Lechmere square rises until it reaches the axial line of the bridge, and thence continues on grade to Prison Point street. The elevated structure past the North Station, through the West End, is now being built to meet the Boston terminus of the bridge. The bridge proper is one-third of a mile in length, with two large segmental arches, a central-arch steel-draw span of the bascule type, and a flat arch of steel girders incased in concrete across Prison Point street in East Cambridge. It represents an expenditure of $4,300,000 for the bridge and its elevated approaches, the artistic qualities of which have been highly commended by the Metropolitan Improvement League.

CONCRETE SAWMILL.

Chattanooga, Tenn., Aug. 17.—The first sawmill of steel and concrete ever erected in the State of Florida will be constructed by three Chattanooga concerns, which have just landed the contract. The concerns are as follows: Chattanooga Machinery Company, the Converse Bridge Company and the Casey Hedges Manufacturing Company. These firms secured contracts for the equipment and erection of the mill, which will be an all-steel and concrete double sawmill for the Rodman Lumber Company, of Rodman, Fla., and is to cost about $80,000.00.

The Keystone Cement Construction Company, of Waupun, Wis., has started the erection of its new building at Janesville, Wis. A complete line of cement products will be manufactured at the new plant, part of the industry to be moved from Waupun. The company recently increased its capital stock to $100,000.

The Raymond Concrete Pile Company, of New York and Chicago, has been awarded the contract for placing concrete piles in the foundations of the Mulberry street viaduct at Scranton, Pa.; W. Ward Easby, Philadelphia, architect.

WEST COAST CONCRETE NEWS.

San Francisco, Cal., August 15.—C. H. Snyder, San Francisco representative of Milliken Bros., Inc., the structural steel fabricators, has patented a new system of reinforcement for use in connection with flat slab concrete floors, in which the space required for floors and columns is reduced. By this system the weight of the floors is carried directly by steel or cast iron columns. This method will be used in the new Bankers' Hotel Building on Market street.

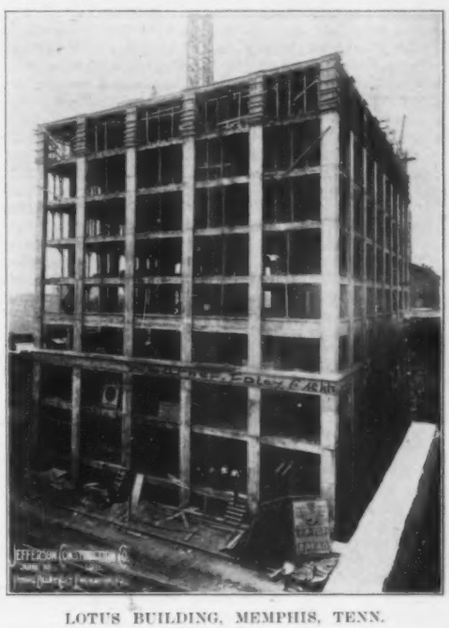
The United Properties Company, of Oakland, is planning a system of docks which will cost about $15,000,000, in which concrete will be used to a large extent. A concrete wall is to be built along the entire north side of the mole, 1½ miles long.

The plan of C. H. Russel, architect, San Francisco, has been accepted for a concrete building for the Glenn County Savings Bank at Willows, Cal.

Within the last month additional contracts for reinforced concrete sewer work in San Francisco have been let to the amount of about $250,000, the contractors being the Healy-Tibbitts Construction Company, the Contra Costa Construction Company and F. Rolandi.

TALLEST CONCRETE BUILDING IN SOUTH.

Memphis, Tenn., August 12.—The Lotus building, referred to several times in ROCK PRODUCTS, and nearing completion in Memphis on Jefferson avenue, is the tallest reinforced concrete building in the South. It is located half a block from Court Square, one and a half blocks from the Exchange building. There is natural light on four sides. It is contemplated to sell the floor space at from 20 cents to 60 cents per square foot per annum. The structure is being erected by the Jefferson Building Company, of New Orleans. Architects Weathers-Foley Company, of Memphis, are the architects and owners. The Kahn system of reinforced concrete is used from the Trussed Concrete Steel Company, of Detroit, Mich. The building is eleven stories and a basement. The Standard Portland cement and Acme cement wall plaster was furnished by John A. Denie's Sons Company, of Memphis. Mississippi River washed and screened binder gravel and sand was furnished by the Union Sand & Material Company, of Memphis. The building contains 18,000 square feet, or three carloads of wire glass furnished by Biswanger & Co., of Memphis. Elevators are from the H. J. Reedy Company, at Cincinnati, Ohio. The lime used on this building was furnished by the Cubbins Lime & Cement Company.



LOTUS BUILDING, MEMPHIS, TENN.

William A. Skelton, of Jacksonville, Ala., has put up his new patent machine for making cement sewer piping. If the new patent proves successful a large plant will be built at Ragland, several of the most promenent business men of the town having signified their willingness to take stock in and build up such a plant should sucess attend the experiment.

LOUISVILLE CONCRETE ENGINEERING.

Louisville, Ky., August 15.—Some big concrete construction jobs, involving fine engineering work, are now developing in Louisville and vicinity to delight the heart of the professional element in the industry. This work is being pursued chiefly along general lines, big bridges, dam construction, including Ohio River and harbor improvement; especially large municipal and business structures and two or three skyscrapers mingled with a big hotel or two and the extension of sewer construction work throughout this city. A new phase is opening up in handsome residence construction, also, for there is at present a tendency for the wealthier classes to turn to the latest idea in building materials for the erection of splendid homes such as have featured the Gateway City, the Bluegress and their residence districts for years.

The concrete work on the new Kentucky & Indiana bridge at the foot of Thirty-eighth street in Louisville is progressing well during the present period of fine building weather. The piers of the big structure have all risen to such a height that the announcment is forthcoming that the concreting will surely be completed by October 1.

Work has been commenced by the Falls City Construction Company upon a ten-story office building at Center and Jefferson streets, directly across from the Jefferson County Court House. The building will contain a reinforced concrete foundation and structural iron frame and is expected to be occupied chiefly by the legal talent of the city because of its proximity to judicial headquarters.

The $500,000 plant of the Kentucky Electric Company is in the last stages of completion, as far as the concrete work is concerned. The plant is arranged with provision for further extension of its precincts if future increases in business justify such a move.

The Watterson, an $800,000 hotel building on Walnut street, near Fourth avenue, the erection of which is being financed by a stock company promoted by Sam P. Jones and Edward F. Gamble, is now story-high in numerous places. The big reinforced concrete frame and foundation of the latest addition to Louisville's hostelry interests is being raised as rapidly as fine weather will permit.

The National Concrete Construction Company is handling a lot of work along handsome residential lines at present. The company recently secured a contract for a $40,000 residence to be erected for the Helknap family on the upper River road, while a similar structure is being erected for the May family in Anchorage, Ky., at a valuation of about $25,000. Both residences are mounted on concrete foundations with hollow tile walls. The National company has also secured some important municipal work, including a $10,000 contract for the new Bland street school house and has been awarded the contract for the installation of concrete floors throughout the present Girls' High School building, as well as the concrete work upon an annex that is to be erected for this institution.

R. D. French, who for eighteen months has been connected with the National Concrete Construction Company, and who is well known in Southern engineering circles, leaves on August 15 for Montreal, Canada, where he has accepted a position as consulting engineer with R. S. Lea, of that city.

Charles F. Taylor, commisioner of Jefferson County, recently completed arrangements with the War Department at Washington, D. C., whereby the specifications for the new bridge that is to be erected over Salt River at West Point, Ky., are approved so that work upon the structure may be commenced at once. The structure is to cost about $56,300 and will be a fine example of up-to-date bridge building. The piers will be of concrete masonry.

The Board of Sewer Commissioners in this city recently decided to expend $150,000 in improving and straightening the course of Beargrass creek through the city limits, so that this waterway will become more of a drain and less of a menace to the city at large. It is proposed to survey the creek bed, erect necessary dams and straighten the channel with concrete chutes at various places so that the overflow during the winter months and in spring will not back into surrounding territory and destroy valuable property, as it has done in previous high-water seasons. The changes in the creek bed will also induce stronger currents to carry away sluggish germ-breeding water. Work along this line is now being undertaken by the commissioners in the vicinity of Ballard's Mills.

Within the next sixty days it is probable that the contract for the erection of the new City Hospital in Louisville will be awarded, as D. X. Murphy & Bro., architects, who are now preparing the plans, state that specifications will probably be forthcoming by Septemb

LOW INSURANCE RATE.

Prize Cement House Draws Lowest Rate of Any Residence in Chicago—Insurance Not Really Necessary.

The Cement Products Exhibition Company, 72 West Adams street, Chicago, petitioned for a special rating on the Prize Cement House, donated at the Third Annual Chicago Cement Show to Miss Lillian M. Williamson, of Chicago.

The house, which was completed some time ago, was considered absolutely fireproof and it was felt should carry a much lower insurance rate than the ordinary classes of residence construction provided for in the insurance schedules. After a thorough inspection by representatives of the Chicago Board of Underwriters the following rates were quoted:

Fifteen cents per $100.00 for one year.



OFFICE AND YARD OF FITZSIMMONS & WHEELER, SPRINGFIELD, ILL.

Ten cents per $100.00 per year for three years.

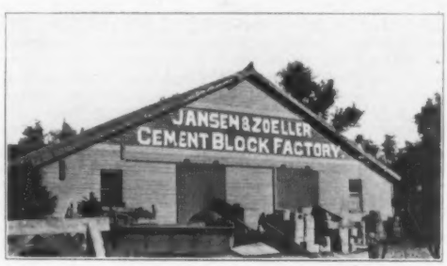
Nine cents per $100.00 per year for five years.

These remarkably low figures are the lowest ever quoted for a residence in Chicago. The rates for the contents were made proportional, being twenty-five cents per $100.00 for one year, sixteen and two-thirds cents for three years and fifteen cents for five years.

The fireproof cement tile construction, the concrete foundation, floors, partitions and stairways have placed this house in a class entirely by itself, acknowledged to be superior in point of safety from fire to anything the insurance inspectors have been called upon to rate.

Such low insurance rates on fireproof construction should be an added incentive to those who give proper consideration to the maintenance charges, as well as first cost in building their homes.

The Williamson house is so thoroughly fireproof that insurance is practically unnecessary. A build-



CEMENT BLOCK FACTORY OF JANSEN & ZOELLER, PEKIN, ILL.

ing of this kind is so safe that it may be true economy to neglect fire insurance except as to contents. The owners of a number of large reinforced concrete factory buildings recently constructed have been offered exceptionally low fire rates, but have not availed themselves of the cheap rates on account of the small danger from fire. Out of three hundred replies to letters from the insurance committee of the National Association of Cement Users, there were sixty-eight owners of fireproof, reinforced concrete buildings who reported no insurance on the ground that insurance was unnecessary. The desirability of fireproof concrete construction has now become a matter of dollars and cents.

The contract for placing concrete piles in the foundations of a tower to be built for the Buffalo General Electric Company at Buffalo, N. Y., has been awarded to the Raymond Concrete Pile Company, of New York and Chicago; Esenwein & Johnson, architects; John Gill & Sons, Cleveland, general contractors.

CONCRETE IN ILLINOIS.

Springfield, Ill., August 21.—The Fitzsimmons-Wheeler Construction Company, of Springfield, has been incorporated with capital stock of $5,000 to do a general concrete construction and building business. This firm is headed by Frank Fitzsimmons, prominent in Springfield building circles, a member of the firm of Fitzsimmons & Wheeler, retailers in building materials with a yard at Tenth street and Capitol avenue. L. E. Wheeler, postmaster, and W. H. Conklin, assistant postmaster, are the other members of the firm. As the firm already has a reputation for good work its incorporation merely gives it a stronger footing.

John Q. Adams, of Morrisonville, has completed a half mile of concrete road near Greenville in Bond county, probably the first in the state. It has not been put into service but the highway commissioners are enthusiastic over its likely success. Twenty-seven days were required for the work. The road is 2,971 feet long and 16 feet wide, requiring 47,536 square feet of concrete. The concrete, which is eight inches thick, is made of 5 parts rock, 2½ parts sand and 1 part cement. Expansion joints are placed every twenty-five feet. These are one inch wide and filled with paving pitch. As little grading as possible was done, only fills being made.

Bordner & Parker, of Clinton, are building six concrete bridges near that place.

Daly & Beckelheimer, of St. Louis, received the contract from the city of Hillsboro for a concrete bridge for $2,795.

A contract for two and one-fourth miles of concrete curbing at Morrison was let to the Carlon Concrete Company, of Oskaloosa, Iowa.

Charles Hall, formerly of Homer, Ill., and Harvey Hall, of Patoka, Ind., have formed a partnership in the concrete construction business at Pakota under the firm name of Hall & Hall. They start business with a contract for 60,000 square feet of sidewalk in Pakota.

The Chrisman Construction Company, of Chrisman, has been incorporated with capital stock of $15,000 to do a general construction business. The incorporators are W. H. Robinson, E. W. James and A. K. Hartley.

Joseph Hodges, of Morrison, has been doing a big business in cement tile, having shipped four carload orders in a single week.

P. J. Goggin, of the P. J. Goggin Contracting Company, of Arcola, was awarded the contract to build a temporary courthouse of concrete blocks for Douglass county at Tuscola.

J. E. Jenkins, of Oklahoma City, Okla., superintended the construction of the model coal chute of the Chicago, Indiana & Southern at Streator. The concrete foundation called for 875 sacks of cement.

After L. J. McCreery and J. B. Agnew, of Augusta, made a trip to Racine county, Mich., to inspect double-wall reinforced concrete silos and learned that the contractor there had orders for eleven silos they returned and Mr. McCreery immediately ordered one of the same type built by the Augusta Brick and Concrete Company.

The new Ridgeview school in Moline, for which Architect H. W. Whitsitt of that city drew plans, will be of reinforced concrete with an exterior of vitrified brick.

The city of Peoria is sending out its annual report of the Department of Public Works, which shows that thirty-five miles of concrete walks have been laid in the last two years.

L. E. Granke, a concrete contractor of Decatur, was killed July 28 when a huge boom on a derrick fell at the waterworks at Decatur, where he was engaged upon a contract.

The E. A. Lord Cement Construction Company, of Monmouth, received the contract for 16,000 square feet of walk in Prairie City.

Braushers Brothers and George C. Parks propose to erect a three hundred-crypt concrete mausoleum at Anna.

The Sycamore city council favors the use of the Pettyjohn system of reinforced concrete columns for the ornamental street lighting system purposed there.

The Arnett Wilson Company, of Bloomington, will build the Farmers' Bank Building at Armington at once.

The Davis-Ewing Concrete Company of Bloomington, built a handsome band stand in Miller Park.

The Poured Cement House Corporation, of Newark, N. J., has been incorporated to carry on a building, contracting and real estate business, with a capital stock of $100,000. The incorporators are W. D. Cochrane, J. F. Papscoe and J. P. Oakes, all of Newark, N. J.

CONCRETE STATUE

Imposing Memorial to Famous Indian Chief Black Hawk Now Finished Near Oregon Ill.

Impressive ceremonies were held recently at Eagle's Nest Camp, the summer colony of Chicago artists and writers, near Oregon, Ill., dedicating the statue of the famous Indian chief, Black Hawk. The statue of this great



THE BLACK HAWK STATUE OF CONCRETE, LORADO TAFT, SCULPTOR.

chieftain is the work of Lorado Taft, and stands on a 250-foot bluff across the river from the town, just outside the limits of the camp. Two hundred Chicagoans journeyed by a special train over the Burlington route to attend the ceremonies, and were the guests of Mr. Taft, the sculptor; Wallace Heckman and Frank O. Lowden, all of whom have summer homes at Eagle's Nest Bluff. Among the members of the party were some of the best known of Chicago artists, sculptors and writers. Edgar A. Bancroft was the principal speaker of the afternoon, and presented the statue to the people of Illinois. Responses were made by Dr. Chas. C. Eastman and Miss Laura M. Cornelius.

This is the first instance of concrete being applied in modern times to the art of sculptor. It not only furnishes a memorial to the first Americans, but it constitutes also a monument to the infancy of the concrete industry in America that will endure for all time, and in future ages continue as much an object of wonder and admiration as the pyramids of Egypt, or the concrete memorials of the Parthenon of Rome.

For the foundation 13 feet of soil had to be removed before bedrock was struck. Here the top of the natural ledge of stone was reached. The ledge, 30 feet deep, is formed of a succession of stones which have the appearance of being built artificially as they show on the river bluff.

Difficulties in the engineering part were encountered. A gallon of water a minute was used in mixing the concrete, and a motor had to be installed and a windlass for getting it up. The first model was of plaster 6 feet high. This was enlarged by careful measurement to a frame of scantlings around an "elevator shaft." When the whole figure had been framed in lumber the surface was made by stretching wire netting over the timbers. Over these forms burlap was fastened with nails. Two pointing machines had to be built, one for the head and one for the body. The modeling was done by the scantlings and the arms shortened here and there until the proportions of the model were reached. Later the burlap was painted over with plaster of paris, giving the appearance of a plaster cast. Meanwhile the head was modeled in clay and cast by the usual process, the piece mold being saved for use again in casting the concrete. The mold, about 3 inches thick, required over ten tons of plaster, with many timbers for support. When complete, everything was taken out of the mold and the space filled with concrete, all but a shaft 7 feet in diameter running the entire length of the figure. An opening back of the folded arms of the statue allows a man passing up the shaft and looking out of invisible windows thus formed.

During the first year, when the first measurements were taken, the wooden structure was blown down in a cyclone. Thus a whole year's work had to be done over again. It has been a labor of love with Mr. Taft, and work for work's sake.

The expense of the undertaking has been borne by Mr. Taft, although the whole colony of artists at Eagle's Nest and Mr. Heckman, on whose land it stands, were more than anxious to assist. Every care for the solidarity of the structure has been taken by consulting engineers.

SUBWAYS STARTED.

Much Enthusiasm Over the Beginning of Actual Work on the New Great New York Subway System.

New York, August 16.—The Brooklyn Rapid Transit Company was awarded by the Board of Estimate by a vote of 14 to 2 all the new transit lines embraced in the McAneny report, with the exception of the Seventh avenue subway from Times Square to the Battery and the subway connection through Forty-second street from Times Square to the Steinway Tunnel.

The grant to the Brooklyn Rapid Transit was made in spite of Mayor Gaynor's assertion that he would make use of the power of veto given him in the rapid transit act to prevent the deal from becoming effective, the Mayor's objection being that the city would be dealing with a corporation as to the nature of which it was in doubt.

Work on the new Lexington avenue subway was formally begun July 31 when Chairman Willcox, of the Public Service Commission, dug out a spadeful of dirt from the pavement near the corner of Sixty-seventh street. At least 2,000 men began actual work after the ceremonies. Mayor Gaynor was not present, and no process server appeared with any injunction papers designed to prevent digging the subway. The crowds gathered to witness the proceedings were very large and the police officials had difficulty in maintaining order and preventing accidents.

The actual work of opening the pavement and digging was begun by two Italian laborers, Nos. 98 and 109 on the Bradley records, two and a half hours before the official ceremonies were due. By 11 o'clock, the time for the official ceremonies, there were 5,000 persons gathered around the grand stand erected before the armory at Lexington avenue and East Sixty-seventh street. In the stand were the chairman, Mr. Willcox, and Mr Maltbie, of the Public Service Commission; the Comptroller, Mr. Prendergast; the Borough President of Manhattan, Mr. McAneny; Mr. Douglas Robinson and the heads of the Bradley Construction Company. Nearly all the staff of the Public Service Commission were in seats, too.

Ten policemen surrounded Mr. Willcox and escorted him back to the grandstand, where he began the speechmaking by reviewing the history of the plans and negotiations for the newest subway. He concluded by saying that the work would continue until the triborough system was finished. Borough President McAneny then spoke. He said it was a day of rejoicing in New York and that the work would be pressed unceasingly until every promise had been fulfilled. Then, he said, the city would have a system with a new standard of principles. He congratulated the Public Service Commission, saying it had not wasted a day in starting to work.

Comptroller Prendergast said that the work had finally evolved from a plan which all agreed was the best which could be procured.

The official party then went to the Hotel Plaza for the luncheon tendered by the Bradley Construction Company.

At least 2,000 men started work immediately after the ceremonies. Before the end of the week at least 2,000 more will be engaged, and in a few weeks the number will be increased to 8,000. These will work in two shifts of eight hours a day each. The company is required to finish the task in forty-eight months. The Bradley company expects to have it completed in forty-two.

The section of the subway on which work was started extends from Fifty-third to Sixty-seventh street. The other sections the Bradley company is to construct extend from Twenty-sixth to Fortieth street, from Seventy-ninth to Ninety-third street and from Ninety-third to 106th street. Contracts for these sections were signed two weeks ago. The plans for the subway were made in 1907.

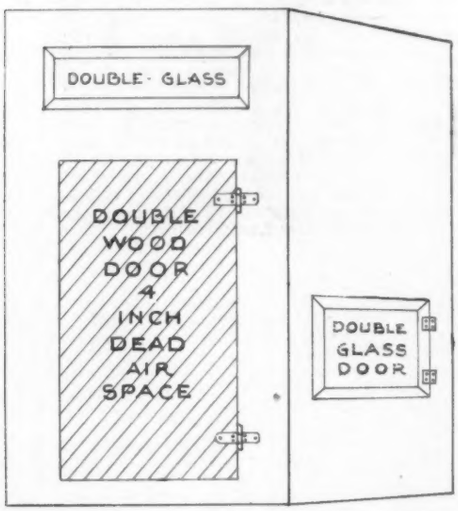
There are to be two shafts at Sixty-second street, both extending down to the level of the tunnels for express tracks. The subway will be double-decked through the greater part of Lexington avenue. There will be two power cranes, one for each shaft, for use in raising all excavated material and lowering material for the construction of the tunnels. The clear headway under the platform is fourteen feet. The floor consists of heavy planks laid on the steel beams with cement on the surface.

This section extends from the southerly line of Fourteenth street at Irving place, north to a point 140 feet north of East Twenty-sixth street, with stations at Fourteenth and Twenty-third streets.

As enormous amounts of cement, sand, gravel and other building material will be used in the construction of the subways, many prominent dealers will be kept busy supplying these products for some time to come.

CEMENT PLASTER ICE-BOX.

The attached drawings show the construction of an ice-box built by E. B. Garrett, of St. Francisville, Ill. This box is 6x8x10 feet. The frame was made of 2x4 oak, covered inside and out with corrugated steel lath. On these was spread a heavy coat of cement plaster, this forming a double concrete wall 4 inches apart, giving a dead air space all around

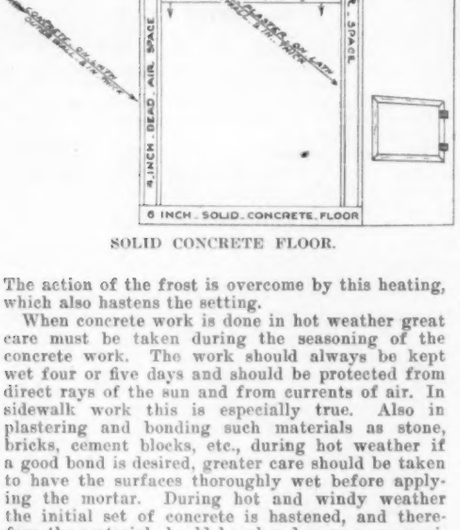


FRONT AND SIDE VIEW OF FINISHED REFRIGERATOR.

the entire structure. The floor and roof are of concrete, the roof of the same construction as the wall. The floor of solid concrete 8 inches thick encases the lower ends of the frame.

CONCRETE IN WEATHER EXTREMES.

Portland Cement mortar or concrete is less affected by extreme cold when it is properly hardened than any other hydraulic mortar. The early stages of setting and hardening of a mortar or concrete are retarded by freezing. Walls which have been frozen are likely to have a thin scale crack and peel off from the surfaces. Freezing, however, affects but slightly, if at all, the ultimate strength of concrete. The materials for concrete that is to be mixed during freezing weather, or when there is a chance that it will be subjected to extreme cold before becoming thoroughly hardened, should be heated before using.



SOLID CONCRETE FLOOR.

The action of the frost is overcome by this heating, which also hastens the setting.

When concrete work is done in hot weather great care must be taken during the seasoning of the concrete work. The work should always be kept wet four or five days and should be protected from direct rays of the sun and from currents of air. In sidewalk work this is especially true. Also in plastering and bonding such materials as stone, bricks, cement blocks, etc., during hot weather if a good bond is desired, greater care should be taken to have the surfaces thoroughly wet before applying the mortar. During hot and windy weather the initial set of concrete is hastened, and therefore the material should be placed as soon as possible before it has commenced to harden, or otherwise the work will not be a success.

Concrete paving received more favorable notice the last month in Illinois than for some time. The Peoria city council sent a committee to Chicago to investigate its possibilities; Secretary Perry, of the Quincy Chamber of Commerce, boosted it after an inspection trip to Burlington; Highland Park officials went prospecting into Ann Arbor and Detroit, Mich., and Kankakee aldermen went to Bloomington to study concrete fillers.

CONCRETE GIN POLES.

One of the leading railroads in the eastern part of the United States has recently adopted reinforced concrete gin poles for use in heavy erection work. One of these poles was lately used in building from 35 ton, 100-foot girders used in building a bridge near Philadelphia. It was the first time that poles of this character had been subjected to such a severe test, the same pole being used for all form girders and was fully satisfactory in its work.

AN UNCONVENTIONAL DRINKING FOUNTAIN

Many and varied are the materials used for watering troughs and drinking fountains, yet concrete has established itself as unsurpassed for this purpose because of its substantial character, its flexibility, its capacity for effective decoration as well as the most severe models, and its relative cheapness.

A particularly interesting type of drinking fountain has been installed at Park Ridge, a suburb of Chicago. It stands at the side of a handsome little public park in the center of the town and supplements a water trough or two, electric light standards and a big display fountain, all built of concrete. Really there are two drinking fountains, one at each side of the park, but as the second is a replica of the other, only one need be described.



DRINKING FOUNTAIN, "JOHNSON CIRCLE," PARK RIDGE, ILL.

This fountain, as well as all the other concrete work on the little park, was designed by John Paulding, the well-known sculptor. An experienced maker of cement molds was secured to construct the forms and all the ornaments and decorative pieces were cast at his shop. Gelatine molds were used in order to get the delicate results required in the modeling.

When this preliminary work had been completed the many small parts were taken to the new park and the main forms constructed and filled with concrete, much of the work being done under the direction of Mr. Paulding and Mr. H. M. Johnson, a retired business man, whose name the park now bears, being known as Johnson Circle. The larger part of the work was done in reinforced concrete, the ornamentation being cast cement, as described.

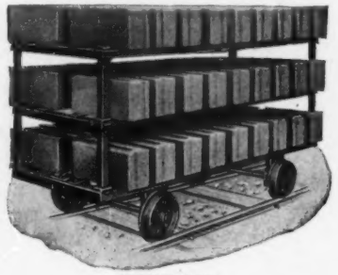
The drinking fountain has a sanitary cup, from which the water gushes when pressure is applied. This is considered an improvement over the kind of bubble fountain which is constantly flowing, as a great waste of water is eliminated. It is to be hoped that as time goes on cities and towns everywhere will come to recognize the great advantages which concrete has for work of this kind and will discard the cast-iron atrocities which now disfigure so many otherwise attractive streets.

Side Talk

in which the Advertiser tells his own story

CHASE ROLLER BEARING CARS.

The Chase Foundry & Manufacturing Company, of Columbus, Ohio, manufacturers of cars for concrete, stone, brick, lumber, contractors' cars, side and bottom dump cars, etc., has recently issued a new catalogue containing full descriptions of all their cars with all the new improvements. Style 195 car, shown on this page, is for cement blocks. The photograph shows the car loaded with 54



STYLE 195.

blocks. Style 202 shows a standard block car not loaded.

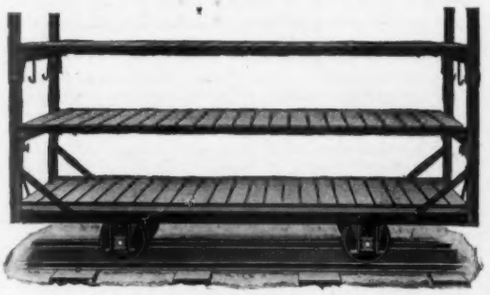
This car has the exclusive feature of being braced at the corners of the car deck proper with steel bars. The decks are braced at each corner with patent malleable iron brackets, which construction eliminates the necessity of using center supports, which supports are objectionable on account of interfering with loading and unloading of the car.



STYLE 202.

This car also has spring bumpers at each end. It is supported by oil tempered steel springs which fit into double slide guiding boxes. The wheels contain roller bearings.

Cut of style 323 shows the new improved tile car which has permanent upright supports on both sides of the car and is so arranged that the decks may be raised from either end.



STYLE 323.

The deck hinge consists of malleable iron trunions which are riveted to the upright supports and act as a pivot upon which notched plates that are attached to the decks turn.

The Ceresit Waterproofing Company, of Chicago, reports an increase in business, as compared with 1910, of 60 per cent.

The Mayville White Lime Works of Mayville, Wis., is installing a rotary screen and bins.

The Browning Engineering Company, of Cleveland, Ohio, has recently issued a handsome catalogue of Browning locomotive cranes.

TROY WAGONS AND DUMP BOXES.

The Troy Wagon Works Company, of Troy, Ohio, manufacturers of Troy reversible spreader wagons and Troy dump cars and boxes, has recently issued several booklets on these wagons and boxes, describing the practicability of the same, their various uses and economies and their superiority over similar contrivances of cheaper merit.

Any of these booklets may be had by addressing the above company.

Heat, moisture and pressure are the three agents most potent in the working of chemical change, and are, alone or in combination, responsible for most of the chemical activities of the universe. Any substance that will withstand unchanged a combination of all three shows an unusual degree of chemical stability.

The above is of interest to the building trades because of its relation to mortar colors. A mortar color that changes its chemical composition changes also its shade, and the result is fading, running and disappointment. Conversely, a mortar color that is chemically stable is likewise permanent in its coloring value.

The following letter therefore tells an important story, as, in the making of sand-lime brick, the mortar colors are subject to the most trying test of their permanency that could be applied—a combination of heat, pressure and moisture:

"We are pleased to say that the colors we are using are certainly all right. We are getting good, keen, bright colors, and the test that they are put under during the hardening process would certainly destroy any colors that are not absolutely permanent.

"Columbia Silica Co., Portage, Wis."

It is through tests like these that the "Red Brick Brand" Mortar Colors have earned the slogan "They Never Fade."

The Universal Portland Cement Company, of Chicago, has recently prepared for free distribution a booklet on "Concrete Silos," which is an original and comprehensive treatment of the whole subject of silage and silo building, pointing out more particularly the advantage and economy of building silos of concrete.

A booklet entitled "Forty-one Concrete Reasons" has just been issued by the Lehigh Portland Cement Company, of Chicago. It contains forty-one reasons why concrete should be selected to the exclusion of any other type of construction. It was written by De Witt V. Moore, C. E., of the Moore-Mansfield Company, Indianapolis, Ind. A copy of this valuable booklet may be secured free of charge from the Lehigh Portland Cement Company.

JONES PURCHASING AGENCY.

The Jones Purchasing Agency, of Minneapolis, Minn., is an establishment that frequently comes to the rescue of the railroad and building contractors and lumbermen in the matter of equipment. It is a concern to which the contractor can go and get machinery for his operations in railroad building, structural building and in fact he can be supplied with all that is necessary for the carrying on of his business. The agency specializes in steam shovels, concrete mixers, dump cars, hoisting engines, locomotives and concrete tools. They also buy and sell both new and released contractors' equipment. The agency is sending out to the interested ones a little pocket scale that shows at a glance the gross and net ton prices of rails per mile of track and the number of ties and splices required for one mile of track. Write the agency at Minneapolis, 507-508 Andrus Building.

UNLOADING CARS WITH A NEW DEVICE.

As the railroads have continually found it necessary to increase the size of their cars, it has become more and more of a problem to unload the open cars by hand into wagons. The high sides, particularly on the "battleship" cars, prevent the shoveler from seeing the wagon which he is filling. There is consequently a considerable loss of time in shoveling and there is also considerable spill. Besides this it is, of course, necessary for the wagon to stand idle while it is being loaded.



DUMPING POSITION ON FULL CAR.

To overcome these objectionable features, a device known as the "S.-A." unloading car chute has been developed, and this will undoubtedly play a large part in reducing this cost of unloading cars. The arrangement virtually "brings the wagon into the car and loads it before its arrival."

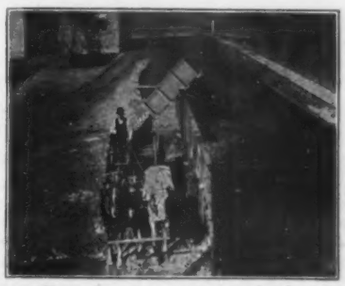
It will be greatly appreciated by contractors, coal dealers or any who have occasion to haul from cars in this way, as it is particularly adapted to the handling of sand, gravel, crushed stone, hard brick, coal or any bulk material shipped in open cars. It is loaded much quicker than a wagon because it is brought down to the material. When it is filled it is raised to the top of the frame and held in this position for the arrival of the wagons, while the shovelers may load the other chute. On the arrival of the wagon, the load may be tipped easily and quickly into the wagon with no spill and no delay of the team and without causing any delay of another wagon. As soon as the wagon is loaded the chute is raised again to its upmost position and returned by gravity to the loading point. Where there are a number of cars and a possibility of having to pay demurrage on them, the "S.-A." unloader is found of great value, often saving one-third of the usual time required to unload a car.



RAISING THE CHUTE.

The construction is strong and the unloader can easily be placed in working position or moved to another car by two men. It can also be taken apart very quickly for shipment or for easier moving. It is entirely self-contained and is adapted for use on any open car.

The chute is made in two sizes, suitable for various materials. No. 1, for stone or gravel, has a capacity of 1½ cubic yards. The total weight is 660 pounds, and when taken apart for easier handling the weight of the heaviest piece is 175 pounds of coal. The total weight of this is 725 pounds and the heaviest piece weighs 213 pounds.



DISCHARGING THE CHUTE TO THE WAGON.

The frame is easily adjustable for all open cars by means of a sliding extension on the frame.

The manufacturers, Stephens-Adamson Manufacturing Company, of Aurora, Ill., have prepared a circular giving a complete description of the device, together with drawings and photographs, which they will send on application to those interested.

CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line
For two insertions.....45 cents a line
For three insertions.....60 cents a line

Eight words of ordinary length make one line.
Heading counts as two lines.
No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYEES WANTED

WANTED—SALESMEN

To solicit business from contractors and dealers in contractor's supplies throughout the United States and Canada. Prefer men with experience in contract work, especially with reference to road building and modern methods of transporting materials. Must be of an age, address and experience to command attention of largest contractors. Application should be accompanied by statement of age, general appearance, class of work have been doing, reason for wanting to change, names of three parties who will vouch for integrity, ability and general worth. Also statement as to when could begin work. In case of favorable consideration, applicant will be expected after notice from us to come to our office at his own expense before final conclusion of arrangements. Situation permanent and salary satisfactory to order-getters of quality.

Address
TROY WAGON WORKS CO., Troy, Ohio.

EMPLOYMENT WANTED

WANTED.

If you are in need of or wish to sell anything which comes under any of these classifications, write us. If you have something not coming under these classifications we will create one for you.

STONE CRUSHING PLANTS.

Civil engineer with nine years' experience in contracting work and quarry operation, having just finished lay out and erection of a large modern crushed stone plant, would like advisory position with firm contemplating quarry reorganization or extension.

Address 806, care ROCK PRODUCTS.

SUPERINTENDENT OR FOREMAN.

Position wanted as superintendent or foreman of lime works, by a hustler of fifteen years' experience, capable of taking full charge of plant, including quarry, and can be depended at all times to keep things up to the minute, and in working order. Can furnish best of references from former employers and produce results.

Address RESULTS,
Care ROCK PRODUCTS.

MACHINERY FOR SALE

THEW SHOVEL.

For Sale—No. 3, overhauled, first class shape. Also narrow and standard gauge locomotives. Address Southern Iron & Equipment Co., Atlanta, Ga.

GOOD CONDITION.

For Sale—Sand washer, sand dryer and fibre machine in good condition. Address
ELASTIC PLASTER & COAL CO., New Haven, Ind.

CRUSHER.

For Sale—No. 6 Gates crusher, screen and elevator. Also Sullivan channeller.
CHAMPION QUARRIES COMPANY, Stone City, Ia.

SOME AUGUST BARGAINS.

¾ yd. Ransome concrete mixer, Batch hopper on skids, with either engine or motor, like new	$ 550.00
½ yd. Ransome mixer, steam power, on wheels, with Batch hopper	450.00
3-16 H. P. D. D. C. hoist engine with sluing device	500.00
1-50 H. P. New Lambert 10x12 cylinder D. D. C.	725.00
250 H. P. Russell Corliss, 4 valve heavy duty engine	500.00
150 H. P. Ideal C. C. automatic engine, heavy frame	300.00
25 H. P. Flour City horizontal gasoline engine	150.00
5 H. P. 2 cycle T. & M. gasoline engine, complete	75.00
Complete crusher outfit No. 5, also No. 3 Austin crusher, derricks, pumps, hoist engines	4,500.00
New No. 5 Austin crusher, western delivery, like new	2,200.00
1 set Allis-Chalmers and 2 sets Cudahy, Wis., rolls 14"x24", Kan.	700.00
No. 5 Gates crusher, new pinions, gears, concaves, shaft, Kan.	860.00
No. 1 Thew standard gauge, full circle shovel, 1yd. dipper	3,500.00
50-lyd. Petitiler 18" gauge, 2 way dump quarry cars, derricks, skips, self righting buckets, cables	30.00

Address JONES PURCHASING AGENCY,
Suite 507-508 Andrus Bldg., Minneapolis, Minn.

BUSINESS OPPORTUNITIES

PATENTS SECURED FOR INVENTIONS.
C. L. Parker, ex-examiner U. S. patent office, 956 G St., Washington, D. C. Write for inventor's handbook.

FLORIDA LIME LAND FOR SALE.
200 acres producing 98% carbonate of lime. Supply practically inexhaustible. Overburden 1 to 4 feet. On railroad and navigable river. Price $6,000 for quick sale. Address GERARD MURIEL, Jacksonville, Fla.

AGENCY FOR BUILDING MATERIAL
Wanted, by a young man acquainted with dealers, architects and contractors in Chicago and central west. A manufacturer who would like to have his goods represented in that territory can secure the services of an energetic man capable of producing good results.
Address 809, care ROCK PRODUCTS.

PLANTS FOR SALE

CRUSHING PLANT.
Stone crushing plant for sale. Close to corporation line of city. (125,000.) In perfect running order. Bargain. Write for particulars.
Address BOX 12 Germantown, Ohio.

TEN ACRES LIMESTONE.
For Sale—Ten acres 98 per cent limestone and equipment complete for burning lime. On C., N. O. & T. P. Ry. Good market and great demand for product. Excellent location for cement plant. For particulars address TENN., care ROCK PRODUCTS.

SAND LIME BRICK PLANT
For Sale—First class modern sand-lime brick plant in western state. Address
M. G. B., care ROCK PRODUCTS.

Attention, Quarrymen!

For Sale—No. 8 Austin Gyratory Crusher.
No. 6 and No. 3 Austin complete plant.
No. 4 Gates Style "D" good as new.
No. 6 " " " " " "
No. 3 Gates and 2 No. 6 Gates and No. 5 "B."
75 ton Vulcan Steam Shovel, 2½ yard. New, 1907.
Little Giant Traction Steam Shovel, 1½ yard.
Thew No. 0 Full Circle Traction Shovel.
9x14 Porter Saddle Tank Locomotive, 36" gauge 13 ton.
17 ton Porter Saddle Tank Locomotive, Standard Gauge; also a 25 ton saddle tank standard gauge.
Air and Steam Drills, Pumps, Boilers, Dump Cars, Relaying Rail, etc.
Full line of Air Compressors.
Quarry Steam Hoists, all sizes.
All our goods we fully guarantee.
Large Chicago stock to select from.

Send for our latest booklet.

WILLIS SHAW MACHINERY CO.
39 So. La Salle St., Chicago, Ill.

WORRELL'S ROTARY DRIERS

For SAND, CLAY, ROCK PRODUCTS and OTHER GRANULAR MATERIALS
Excellent Results, Moderate in Cost and Expense of Operation

In sending for prices and printed matter describe your material fully, giving its percentage of moisture, required hourly capacity, etc.

S. E. Worrell
HANNIBAL, MO.

(FIRST MANUFACTURER OF ROTARY FIRE DRYING MACHINES IN THE U. S.)

Some Bargains in Quarry Equipment

STEAM SHOVELS

One No. 0 Thew full circle traction.
One No. 1 Thew full circle traction new boiler and dipper.
One Little Giant Traction Shovel 1¼ yard bucket.
One Marion 60 ton, 2 yard bucket model 50, No. 1728.

COMPRESSORS

One Ingersoll-Sargent class A 10x10½x12, capacity 177 feet.
One McKiernan straight line 16x16x18 capacity 500-550 feet.
One Ingersoll-Sargent class H 12x12x12½, capacity 475 pounds.

SCREENS, ELEVATORS, HOISTS, ETC.

We have a complete line of standard Gates, Austin and other screens and elevators, and everything in hoisting appliances.

LOCOMOTIVE CRANES

One Industrial 5 ton 25 foot boom fall block.
One Interstate 20 ton full circle 60 fcot boom suitable for either clam shell or orange peel bucket. 8 wheel truck.
One Browning 15 ton 42 foot boom equipped with one yard clam shell.

CRUSHERS

One No. 3 McCulley only slightly used.
One No. 4 Gates rear drive.
One No. 5 Austin, late model used on lime stone only.
One No. 6 McCulley, with manganese head and concave. Elevator and screen.
One No. 10 McCulley.

Write for our May Bulletin of Bargains in Heavy Equipment Before You Buy. A Postal-Card Brings It.

MARSH COMPANY, 971 Old Colony Building, CHICAGO, ILLINOIS

CURRIE & McLAREN

CONSULTING ENGINEERS
N. W. Cor. 12th and Spruce Sts., Philadelphia, Pa.
PLANTS DESIGNED OR REMODELED

Patents and Trade-Marks

Personal, Expert Services. :: Fair and Reasonable Rates. :: 25 Years Before United States Patent Office :: :: ::
C. T BELT, Warder Bldg., Washington, D. C

Continuous and Double Air Space Building Blocks



Eighty Page Concrete Machinery Catalogue FREE.

FRANCIS MACHINERY CO., 4 Market St., St. Louis, Mo.

Stone Crushing and Power Plants.

DESIGNED AND ERECTED
Special reports made on Quarries and Plants not producing results.

PRESTON K. YATES, Consulting Engineer
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FOR THE WALLS OF THE WEST

USE NEPHI PLASTER

THE DEPENDABLE BRAND

For sale by the most prosperous dealers in every community throughout the Pacific Coast and Rocky mountain states. Highest grade Hardwall, casting, finishing, dental and land plaster. Used in the highest class structures throughout the west for more than twenty years. Time has told the story. Hard, permanent, enduring. Made from the largest and purest deposit of gypsum in the world. Write for free booklet.

NEPHI PLASTER & MANUFACTURING CO.
Main office, Boston Building, SALT LAKE CITY, UTHA

JAS. B. MACNEAL & CO. MAKERS OF CALVERT MORTAR COLOR WORKS BALTIMORE.

F. A. Jones, M. E.

Gypsum Specialist

Consulting, Mechanical and Chemical Engineer, in Designing, Construction and Operation of Plaster Mills, (Kettle or Rotary Process), Elevating, Conveying and Crushing, Mechanical Drying, (Kiln or Rotary) and Hydrating Plants, Power Houses, Pumping Stations and Water Powers.
Examination, Tests, Analysis and Reports. Plans, Specifications and Superintendence of Construction.

311-C FEDERAL BLDG.
YOUNGSTOWN, OHIO.



Anchor Brand Colors

For Mortar, Cement and Brick
Brown, Black, Red and Buff
Strongest and Most Durable

Manufactured by **C. K. Williams & Co.**
Correspondence Solicited Easton, Pa., U. S. A.

A BARGAIN IN CRUSHERS

One **Size 10** McCully Gyratory—Receiving opening 24″x 198″—Capacity 300 to 700 tons per hour—Crushes to 5″—Weight 220,000 lbs.

ALSO

One **Size 6** McCully Gyratory—Receiving opening 11″ x 88″—Capacity 50 to 75 tons per hour—Crushes to 2½″—Weight 48,000.

Both equipped with Manganese Steel, Mantled head and concaves. They are located at Jersey City and can be bought at an exceedingly low price if sold at once. Inspection Invited.

Address

KEYSTONE STATE CONSTRUCTION CO.

704-709 Pennsylvania Building,

Philadelphia, Penna.

Do You Have Cars to Haul?

The Davenport Locomotive Will Save Money



Special Designs for Special Purposes
Any Size, Any Gauge, Any Weight
Write for Prices and Particulars

DAVENPORT LOCOMOTIVE WORKS

DAVENPORT, IOWA

BRANCH OFFICES:

Chicago, 12 and 14 So. Canal St. — New York, 30 Church St.
Seattle, 617 Western Ave. — Minneapolis, 107 3d Ave. No.

F. H. Hopkins & Co., Montreal, Que., Canadian Representatives

Amatite ROOFING

Needs No Painting

MOST ready roofings require special painting and coating, and unless this is done regularly, you are sure to have leaks and trouble right along.

With Amatite, nothing of the sort is required. It gives real roof protection *without painting* of any kind.

Amatite is made to stay waterproof and give protection year after year, without any thought or care on your part.

First—Because it is waterproofed with Coal Tar Pitch.

Second—Because it has a real Mineral Surface.



Amatite, owing to these features, is the most economical roofing made. Its first cost is low, and the user saves all future expense for repairs or paint because it will need neither.

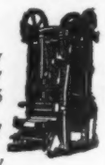
If you haven't seen Amatite, write today for further information and samples. From it you will very quickly understand why it doesn't require painting and why it does not leak.

Address Nearest Office.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Pittsburg
Cincinnati Kansas City Minneapolis New Orleans Seattle London, England

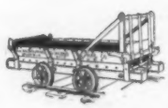
THE HENRY MARTIN BRICK MACHINE MFG. CO.
LANCASTER, PENNA.



ROCK CRUSHING MACHINERY
BRICK-MAKING MACHINERY
CLAY-WORKING APPLIANCES
CEMENT BRICK MACHINERY
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New Advertisements

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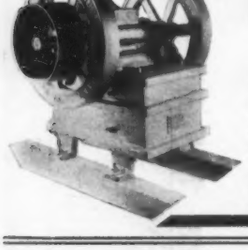
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ROCK PRODUCTS — Index to Advertisements — AUGUST 22, 1911

Aetna Powder Co. 17
Allen, Edgar, American Manganese Steel Co. 48
Allentown Pt. Cement Co. 1
Alpha Portland Cement Co. 2
Aluminate Patents Co. 15
American Cement Co. 92
American Clay Machine Co. 91
American Dynalite Co. 16
American Locomotive Co. 78
American Process Co. 18
American Pulverizer Co. 73
American Steel & Wire Co. 11
American Well Works, The 66
Atlantic & Gulf Portland Cement Co. 1
Atlas Car & Mfg. Co. 92
Atlas Portland Cement Co. 92
Austin Mfg. Co. 70
Automatic Weighing Machine Co. 46

Bacon, Earl Co. 74
Barrett Mfg. Co. 63
Bartlett, C. O., & Snow Co., The 75
Beckley Perforating Co. 76
Belt, C. T. 62
Binns Stucco Retarder 84
Books for the Trade 68
Buckbee, J. C., Co. 2
Buffalo Wire Works Co. 76
Butterworth & Lowe 83

Caldwell, H. W., & Son Co. 74
Carolina Portland Cement Co. 1
Century Cement Mach. Co. 90
Ceresit Waterproofing Co. 8
Chalmers & Williams 70
Chase Foundry Mfg. Co. 88
Chattanooga Paint Co. 90
Chemical Stucco Retarder Co. 84
Chicago Belting Co. 1
Chicago Portland Cement Co. 46
Chicago Structural Tile Co. 67
Chrome Steel Works 70
Classified Business Directory 65
Clinton Metallic Paint Co. 86
Concrete Stone & Sand Co. 89
Coplay Cement Mfg. Co. 46
Cummer & Son Co., F. D. 18-83
Currie & McLaren 62
Cyclone Quarry Drill Co. 66

Dakota Plaster Co. 83
Davenport Loco. Works 63
Dexter Portland Cement 1
De Smet, George W. 8
Dull, Raymond W., & Co. 76
Dunning, W. D. 91
DuPont Powder Co. 17

Ehrsam, J. B., & Sons Mfg. Co. 80
Eureka Stone & Ore Crusher Co. 6

Farnham Cheshire Lime Co. 12
Fisback Gypsum Co. 48
Fowler & Pay 12
Francis Mchy. Co. 62
French, Samuel H., & Co. 1
Fuller Eng. Co. 75

Gandy Belting Co., The 75
Gearless Co. 90
Good Roads Construction Co. 64
Good Roads Mach. Co. 73
Gardner Crusher Co. 71
Garden City Sand Co. 86

Harbison-Walker Refractories Co. 1
Houston Bros. Co. 90
Howells Mining Drill Co. 66
Hunt, Robt. W., Co. 46

Illinois Leather Co. 86
Improved Equipment Co. 15
Independent Powder Co. of Missouri 17
Ironton Portland Cement Co. 2

Johnson & Chapman Co. 77
Jones, F. A. 62

Kansas City Pt. Ct. Works 45
Kelley Island Lime & Trans. Co. 12
Kent Machine Co. 70
Keystone Traction Drill Co. 66
Kilbourne & Jacobs Mfg. Co. 64
King, J. B., Co. 82-86
Kirkpatrick Sand & Cement 1
Kramer Automatic Tamper Co. 90
Kritzer Company, The 14
Keystone State Construction Co. 63
Kent Mill Co. 72

Lakewood Lines 74
Lehigh Portland Cement Co. 2
Lewiston Fdy. & Mchc. Co. 74
Louisville Fire Brick Works 90

McCormick Waterproof Portland Cement Co. 9
McDonnell Boiler and Iron Works 83
McLanahan Stone Mchy. Co. 74
Macneal, Jas. B., & Co. 62
Main Belting Co. 75
Marblehead Lime Co. 13
Marion Steam Shovel Co. 79
Marsh Co. 62-87
Martin, Henry, Brick Machine Mfg. Co. 64
Maumee Chemical Co. 48
Meacham & Wright 46
Meyer, W. D. 62
Miller, Clifford L., & Co. 12
Mitchell Lime Co. 10
Monon Route 64

National Lime & Stone Co. 10
National Mortar & Supply Co. 13
National Retarder Co. 84
Nephi Plaster & Mfg. Co. 62
Niagara Gypsum Co. 85
Northwestern States P. C. Co. 2
Nuttall, R. D., Co. 74

Ohio and Western Lime Co. 13
Ohio Ceremic Eng. Co. 74
Ohio Retarder Co. 84
Ottawa Silica Co. 1-47

Peerless Brick Mch. Co. 88
Pennsylvania Crusher Co. 2
Perfection Block Mach. Co. 88
Pettyjohn Co., The 88
Phoenix Portland Cement Co. 1
Plymouth Gypsum Co., The 83
Power & Mining Mchy. Co. 4

Raymond Bros. Impact, Pul. Co., The 72
Reeb, M. A. 84
Richards, M. V. 12
Ricketson Mineral Paint Wks. 2
Ruggles-Coles Eng. Co. 18

Sackett Screen & Chute Co., H. B. 76
Salisbury, W. H., Co. 75
Sandusky Portland Cement Co. 18
Sasgen Bros. 46
Schmatolla, Ernest 12
Scioto Lime & Stone Co. 13
Security Cement & Lime Co. 45
Shaw, Willis, Machinery Co. 62
Shuart-Fuller Mfg. Co. 83
Sioux City Cement Machinery Co. 88
Smidth, F. L. 64
Smith, T. L. Co., The 5
Southern Railway Co. 12
Spackman, Henry, Eng. Co. 18
Standard Portland Cement Co. 1
Standard Scale & Supply Co. 8
Sayler's Portland Cement Co. 46
Steacy-Schmidt Mfg. Co. 16
Steel Protected Concrete Co. 48
Stephens-Adamson Mfg. Co. 47
St. Louis Portland Cement Co. 45
Sturtevant Mill Co. 6-77
Superior Portland Cement Co. 47
Symons Brothers 6-7

Taylor Iron & Steel Co. 76
Traylor Engineering Co. 7
Troy Wagon Works 77
Titan Steel Casting Co. 76

Union Mining Co. 1
Union Sand & Material Co. 45
United States Gypsum Co. 81
United States Marine Sig. Co. 91
Universal Portland Cement Co. 45
Universal Crusher Co. 64

Vulcan Steam Shovel Co. 79

Wadsworth-Howland Co. 8
Webster Mfg. Co. 75
West Jersey Bag Co. 45
Wheeling Wall Plaster Co. 85
Whitehall Portland Cement Co. 46
Williams, C. K., & Co. 62
Williams Contractors' Supply Co. 18
Williams Patent Crusher and Pulverizer Co. 68-69
Wolverine Portland Cement Co. 46
Woodville Lime & Cement Co. 10
Worrell, S. E. 62

Yates, Preston K. 62

CLASSIFIED BUSINESS DIRECTORY

BAGS.
Urschel Bates Valve Bag Co.
West Jersey Bag Co., The

BAG TYERS.
Miller & Co., Clifford L.

BALL MILLS.
Power & Mining Mchy. Co.
Traylor Engineering Co.

BELTING.
Chicago Belting Co.
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Buckbee, J. C., Co.
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Smidth & Co., F. L.
Traylor Engineering Co.

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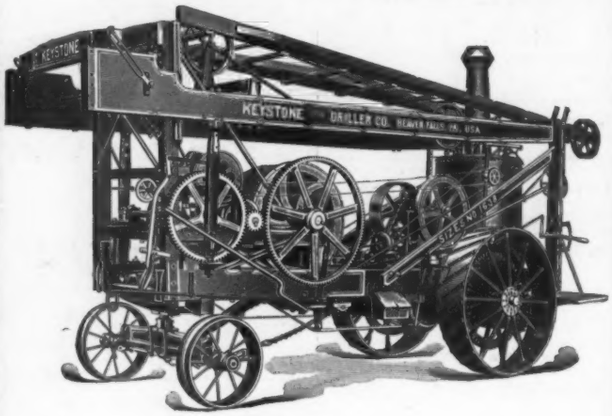
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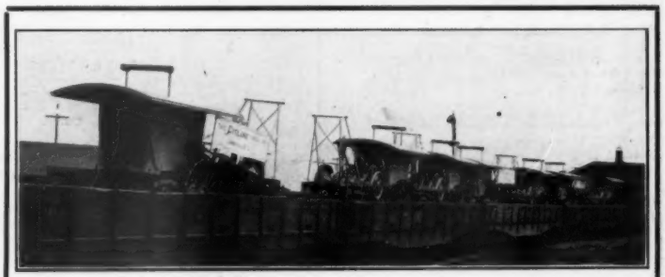
For Big Blast Holes
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CABLE DRILLS



Catalog No. 4

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(ESTABLISHED 1878.)

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For Dwellings, Factories, Walls, Floors, Etc.
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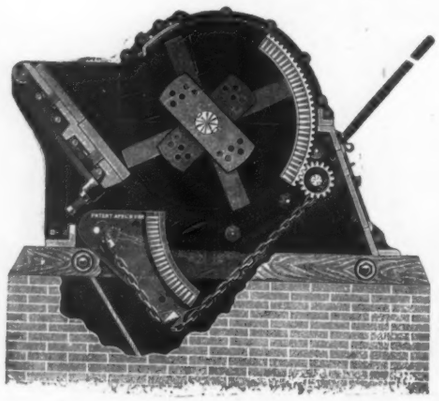
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The Insulation Value of Concrete Tile Walls for Lumber Dry Kilns and Refrigerators Is the Latest Grand Achievement in the Cement Industry

WILLIAMS JUMBO CRUSHER

Will take 6 in. Limestone or Shale and reduce to 2 inch,—1½ inch,—1 inch,—¾ inch and finer. 1 No. 6 Recently Replaced 3 No. 5 Gyratories.

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Your crusher reduces all of our material to three-quarter inches and finer, and the majority to one-quarter inch.

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Yours very truly, THE IOLA PORTLAND CEMENT CO., F. L. WOODS, Supt.

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ROCK PRODUCTS, 537 South Dearborn Street, CHICAGO

(COPY)

NOTICE TO PUBLIC:

IN THE UNITED STATES CIRCUIT COURT OF APPEALS.
For the Third Circuit.

Williams Patent Crusher & Pulverizer Co., Appellant.
vs.
Pennsylvania Crusher Company, Appellee.
No. 1376.

FINAL DECREE ON MANDATE.

On reading and filing in this Court the mandate of the United States Circuit Court of Appeals for the Third Circuit, bearing date April 24, 1911, in obedience to said mandate and in cognizance of the opinion of the said United State Circuit Court of Appeals:

1. It is this nineteenth day of June, 1911, hereby ordered, adjudged and decreed that claims 1 and 2 of letters patent No. 843,729, dated February 12th, 1907, granted to the Williams Patent Crusher & Pulverizer Company of St. Louis, Missouri, a corporation of Missouri, for Dumping Cages for Crushers and Pulverizers, are good and valid in law, *and that Milton F. Williams, upon whose application said letters patent were granted, is the first and original inventor of the invention therein set forth.*

2. It is further ordered, adjudged and decreed that the complainant, the Williams Patent Crusher & Pulverizer Company, is the sole and exclusive owner of all right, title and interest in and to said letters patent, and that the defendant, the Pennsylvania Crusher Company, has infringed said claims and on the exclusive rights of the complainant under said letters patent by making, using and selling crushing machinery containing the dumping cages and operating mechanism therefor set forth in said claim.

3. It is further ordered, adjudged and decreed that *the complainant do recover of the defendant all of the profits, gains and advantages which the defendant has derived, received or made by reason of said infringement of said letters patent, and that the complainant do recover of the defendant any and all damages which the complainant has sustained by reason of such infringement.*

4. It is hereby referred to Pierce McCutcheon, Esq.,
as a Master of this Court who is hereby appointed, pro hac vice, to take and state the amount of said gains, profits and advantages and to assess such damages and to report thereon with all convenient speed; and the defendant, its directors, officers, attorneys, clerks, servants and workmen are hereby directed and required to attend before said master from time to time as required and to produce before him such books, papers, vouchers and documents, and to submit to such oral examination as the Master may require; and the Master is instructed to consider the evidence already taken in this case, and the exhibits in evidence, and such further evidence as may be taken.

5. It is further ordered, adjudged and decreed that a perpetual injunction issue out of and under the seal of this court directed to the said defendant, the Pennsylvania Crusher Company, its associates, directors, officers, attorneys, clerks, agents, servants and workmen, enjoining, and restraining them and each of them from directly or indirectly making or causing to be made, using or causing to be used, or vending to others to be used in any manner, any articles, devices, apparatus, mechanism or machines, containing, embodying or employing said inventions or improvements set forth and claimed in claims 1 and 2, or from infringing upon or violating claims 1 and 2, of said letters patent in any way whatsoever.

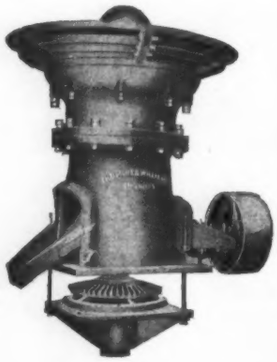
6. It is further ordered, adjudged and decreed that Complainant do recover of the defendant its costs, charges and disbursements in this suit to be taxed, and that the question of increase of damages be reserved until the coming in of the Master's report.

All Williams Crushers and Grinders are protected by 87 U. S. and Foreign Patents.
Don't Purchase an Infringing Machine.

The Williams Patent Crusher & Pulverizer Co.

WORKS:
2705 N. Broadway
St. Louis, Mo.

Old Colony Building
CHICAGO



The Kennedy Gyratory Crusher

is giving entire satisfaction wherever installed, due to ball and socket self-aligning eccentric and the perfect design of the entire crusher.

ONE OPERATOR SAYS:

The No. 6 Crusher bought of you last year is giving perfect **satisfaction.** We ran it all last season without a **minute's delay or expense,** and think it superior in every way to our other crusher.

ANOTHER ONE SAYS:

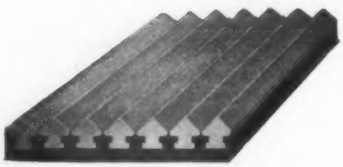
We installed a No. 8 Kennedy Crusher last spring, and operated it a good part of the season, and must say I consider it the best crusher on the market.

Numerous others of like nature too numerous to mention, all attesting to the superiority of The Kennedy Gyratory Crusher.

Chalmers & Williams, Inc. General Offices and Works: **Chicago Heights, Ill.**

A Tempered Steel Jaw Plate for Blake Type Crushers

CHROME STEEL WORKS
CHROME . N.J.. U.S.A.
FORMERLY OF BROOKLYN . N.Y.



Canda Tempered Steel Crusher Jaw Plate

Patented March 31, 1908

¶ The Canda Tempered Steel Jaw Plate for Blake Crushers is composed of Forged and Rolled Chrome Steel Bars, cast-welded and also mechanically interlocked into a backing of tough steel—and the wearing face is tempered to extreme hardness. We are equipped to supply both corrugated and smooth face plates for all sizes and makes of Blake Crushers.

¶ The Canda method of cast-welding forged and tempered steel bars into a mild and tough Steel Backing, is adapted also to the construction of Cone Heads for Gyratory Crushers, Segments for Corrugated Rolls, etc., etc.

¶ Our products in this line are sold with our special guarantee that they *will wear longer, give better satisfaction and, at our price, prove more economical than any others now on the market.*

— Send for Descriptive Pamphlet —

Represented by

J. F. Spellman, 202 Century Building, Denver, Colo. George T. Bond, Easton, Pa. George W. Myers, San Francisco, Cal.



AUSTIN GYRATORY CRUSHER

The World's leading rock and ore breaker.

The only self lubricating Crusher.

The only Crusher having double countershaft bearing.

Simple construction, correct design.

Thousands in use.

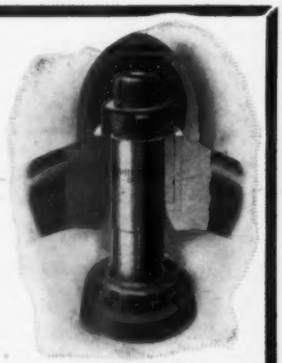
Plans and specifications furnished for any sized plant.

Send for Catalogue No. 17.

All experienced users recognize that the efficiency and durability of the suspension bearing as applied to Gyratory Crushers, depends upon locating the bearing at the point of least gyration or movement of the main shaft.

A perfect suspension can be made only by locating the bearing at the point where there is no movement of the shaft. That being a mechanical impossibility it follows that superiority is obtained in fixing the bearing at the point of least gyration on the shaft.

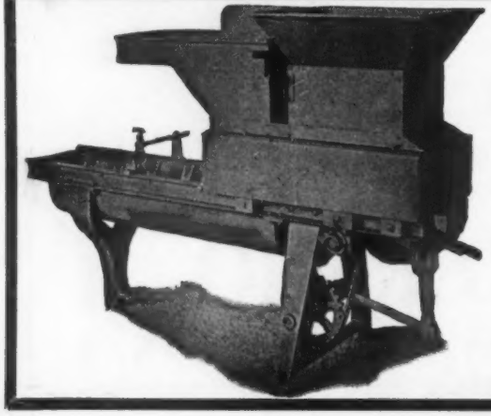
As the accompanying cut will show, the movement of the shaft at the point of suspension in the Austin Crusher is reduced to the minimum and practically eliminated. Consequently the highest possible degree of efficiency and durability is obtained.



Austin Manufacturing Co., Chicago

Mussens Ltd., Montreal, Can., Canadian Sales Agents.

New York City Office
1682 FULTON BUILDING
Hudson Terminal



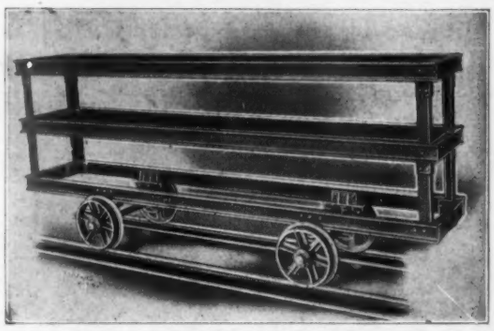
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"The Mixer that measures and Mixes"
"You fill the Hopper, the Mixer does the rest"

Simple, reliable, economical, durable and moderate in price

Write for Catalogue and Prices to

The Kent Machine Co.
306 N. Water St., Kent, O.



The "KENT" Block Cars, Transfer Cars, etc.

The Gardner Crusher
Disintegrator and Pulverizer

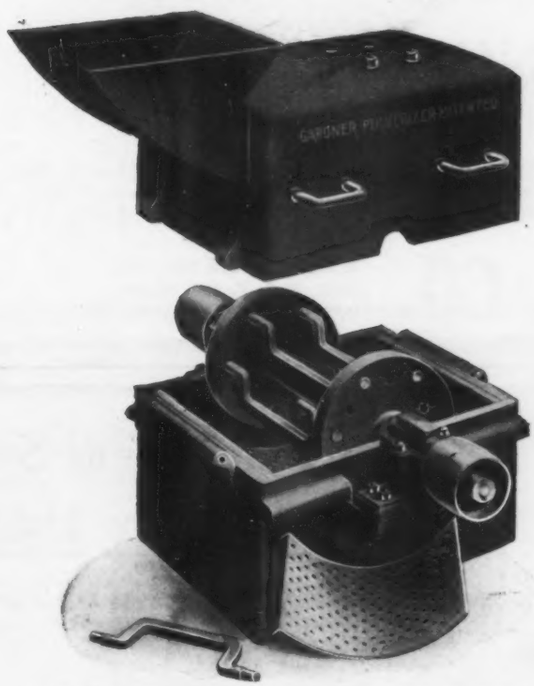
The great advantages of our CRUSHER are the following:

High Productivity — **Low Motive Power**
Small Space Occupied — **Strong Construction**
Nominal Wear — **Any Desired Fineness**
Moderate Prices

The Gardner Crusher Disintegrator and Pulverizer

is adapted for

Cement, Plaster, Quartz, Pyrites, Lime, Pozzolana Earth, Blast Furnace Cinders, Calcareous Stones, Porphyry, Granite, Emory, Corundum, Saggar from Potteries, Scoria, Hammerslag, Construction and Foundry Sand, Phosphates, Ochres, Bones, Sandstone, Silex, Bricks, Coal, Pitch, Glass, Enamels



AN IDEAL PREPARATOR FOR THE TUBE MILL.

TRIALS

In order to give every facility to our customers, we have installed a Crusher for trials at our plant at 532 West 34th Street, New York City. You have only to send us a sample of your crude material and a sample of what you require when crushed. You should also specify the quantity that you desire per hour.

Our experienced engineer is at your disposal for any further explanation. *Send For Catalogue.*

The Gardner Crusher Disintegrator and Pulverizer

has these advantages:

Is the most economical of all Crushers or Pulverizers.

Its price is very moderate.

Its capacity for pulverizing is enormous compared to its size and power required.

The *Gardner Crusher* requires no special foundations and can be put up anywhere.

Any fineness required can be obtained by merely changing the screens.

Its weight is very light, so the crusher can be sent to any remote country.

With the *Gardner Crusher,* in some cases, the complete equipment of a crushing plant will be the *Gardner Crusher* and the tube mill. With this kind of an installation the larger machines No. 2 or No. 3 would be used, eliminating the preliminary breaking machines.

GARDNER CRUSHER CO.

532 WEST 34th STREET — NEW YORK CITY, U. S. A.



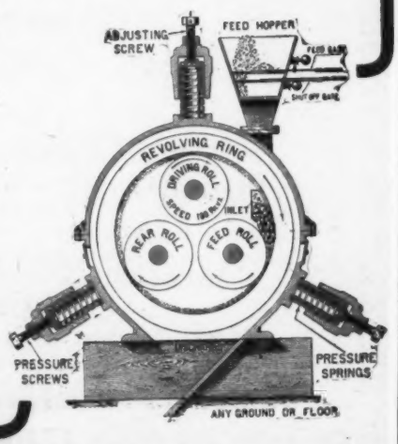
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Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY. Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

WE DO NOT CLAIM ALL of the CREDIT for this achievement

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co. Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.



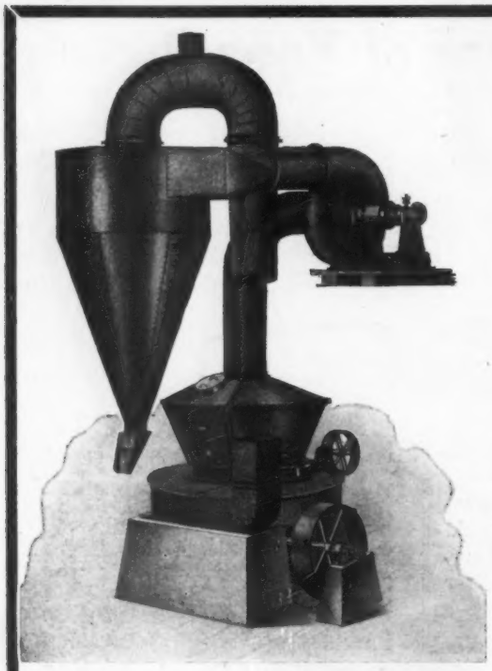
THE RING WOBBLES

The FREE WOBBLING POUNDING RING instantly and automatically ADAPTS its position to the variations of work.

Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

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170 BROADWAY, NEW YORK CITY
LONDON, W. C., 31 HIGH HOLBORN
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No Pulverizing System So Good as this for Hydrated Lime

The **RAYMOND MILL** with **AIR SEPARATOR** made possible the manufacture of Hydrated Lime. Practically every successful manufacturer of hydrated lime now uses the Raymond System. Those who tried using screens or other so-called Air Separators have practically all discarded them and put in our System. The

RAYMOND Pulverizing Air Separator SYSTEM

can make two separations of the tailings if desired—the coarse core and the finer tailings containing lime enough for fertilizer and other agricultural purposes, or the mill can be adjusted so that it will grind up all the impurities to the same fineness as the lime. A poor lime can be fed to the Raymond Mill and the Mill can be so adjusted that it will automatically separate from it the impurities; leaving a finished product that is marketable.

25 plants have already adopted the Raymond Mill with Air Separators; most of them after having had unsatisfactory experiences with other systems.

Every hydrating plant installed by the Kritzer Co., of Chicago, has a Raymond Mill with Air Separator as part of the equipment, because they, more than all other systems, are peculiarly adapted to the conditions surrounding the reduction of hydrated lime to powdered form.

Send for our Book "I" which explains in detail what our system is and how and where it may be used.

Read this book and you may find the way to divert some items from the expense account into the dividend account.

We design special machinery and methods for Pulverizing, Grinding, Separating and Conveying all powdered products. We manufacture Automatic Pulverizers, Roller Mills, Vacuum Air Separators, Crushers, Special Exhaust Fans and Dust Collectors.

RAYMOND BROS. IMPACT PULVERIZER COMPANY, 577 Laflin St., Chicago, Ill.

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To write Raymond Brothers Impact Pulverizer Company, 577 Laflin St. Chicago, for their Book "I" on Modern Methods of Pulverization and Air Separation.



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Our Advertisements Have Told You the Names of Users of Our

American Ring Pulverizer

and of the Dry Pans, Hammer-Mills, Cone Mills, Roll Disintegrators and Other Types of Mills that they have discarded, declaring the superiority of the

American Ring Pulverizer

It does its work with less cost of operation, does more and better work, withstands more rugged work and is doing work other types of mills cannot do.

Slow Speed---**THE RING IS THE WHY**---Low Power

All Grinding Parts made of Manganese Steel. Those who Investigate invariably Buy

We maintain a Testing Plant. Send Sample, freight prepaid, and we will pulverize it free. Better yet, come and see it pulverized. Written guarantee with each Machine. 30 days' test at your Works.

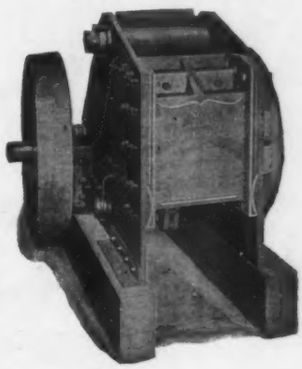
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American Pulverizer Company

410 Jaccard Building **St. Louis, Missouri**

Increase the Output and Efficiency of Your Quarry

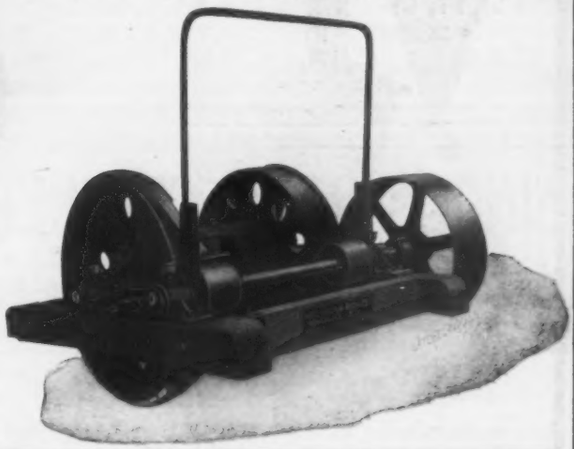
By using CHAMPION Rock Crushers, Elevators, Screens, Dump Cars, Hoisting Drums, Wire Cable, Conveyors, Bin Chutes, Engines and Boilers. Everything for the quarryman furnished at right prices. Our Dump Cars are Durable and Economical. Made in two sizes.





Champion Steel Rock Crushers are made in six sizes, from 75 to 600 tons daily capacity. We design and equip quarry plants of any capacity. Our Crushers do more work at less cost for repairs than any others. Catalog will interest you.

Count on quality when you consider Champion Quarry Machinery. We aim to furnish nothing but the best. Our winding drum is a low-priced, durable and economical appliance for drawing material from the quarry to the Crusher. Powerful and always to be depended upon.



The Good Roads Machinery Company, Kennett Square, Pa.

EXTRACTS FROM MINUTES OF MEETING OF _____ COMPANY

September 13, 1909.

Usual monthly report presented by Manager. Orders on hand $, shipments $. On being asked why shipments were not heavier, the Manager said: "That with the present way of handling raw and finished material, no increase in shipments was possible—it was very slow and costly." The Manager was then instructed to study the problem and report as soon as possible.

October 14, 1909.

The Manager presented his report upon handling the raw and finished material. He recommended that **Portable Track with properly constructed switches, together with skids and stone sleds of the LAKEWOOD LINE** be purchased and installed.

The report was unanimously received and adopted and it was recommended that the equipment be purchased.

December 3, 1909.

The Manager reported that all the **LAKEWOOD LINE** Equipment had been purchased and that it was **working satisfactorily.** He expected to be able to show increased production at the next meeting.

The Manager reported on January 16, 1910 an increased production of 12% for the past month—on February 13, 1910, an increase of 15% —on March 14, 1910, an increase of 16½%—on April 12, 1910, an increase of 16¾%, and, said the Manager, "There has been no increase in labor account—**the increase is due to the excellence of the LAKEWOOD LINE."**

THE OHIO CERAMIC ENGINEERING CO.
CLEVELAND, O.

CHICAGO, ILL. 1015 First National Bank Bldg.
PITTSBURGH, PA. 1205 Fulton, Building
ST. PAUL. Paul J. Kalman Co., Pioneer Press Bldg.

MACHINERY
FOR
Industrial Plants



We manufacture machinery for transmitting power, and for elevating and conveying materials in and about cement plants, rock crushing plants, lime plants, mortar works, plaster works, and other industries.

We manufacture screw conveyors, belt conveyors, and all sorts of chain and cable conveyors, for handling rock, lime, sand, etc.

We manufacture elevators, also, for handling the same kinds of material. Our lines include shafting, couplings, bearings, collars, pulleys, gears, rope sheaves, sprocket wheels, elevator buckets and bolts, steel elevator casings, etc.

We have our own foundry, sheet metal department and machine shop. We employ first-class help in all departments and use high-grade materials.

When you are in need of anything in our line, try us.

Catalog No. 34

H. W. Caldwell & Son Co.
17th St. and WesternAve., Chicago

Fulton Bldg., Hudson Terminal, No. 50 Church St.
NEW YORK CITY

FARREL ORE AND ROCK CRUSHER

USED IN ALL PARTS OF THE WORLD—LARGE RECEIVING CAPACITY—SPECIALLY DESIGNED AND CONSTRUCTED FOR HARDEST KIND OF WORK

COMPLETE CRUSHING PLANTS OUR SPECIALTY

• SEND FOR CATALOGUE •

EARLE C. BACON, ENGINEER.
FARREL FOUNDRY & MACHINE Co. HAVEMEYER BUILDING, NEW YORK

What Nuttall Gears Will Do



Operate at 20 to 40% less power than is necessary to operate cast tooth gears—run smoothly and quietly in severe and continuous service—increase the efficiency of the machinery. These claims have been proven repeatedly by Nuttall gear users in all branches of the clay working industry. Accuracy, material, and wearing qualities guaranteed. Send in your specifications or blue prints for special trial proposition.

When in a hurry, wire us.

Nuttall—Pittsburgh

SINGLE ROLL CRUSHERS

For Limestone, Phosphate Rock, Cinder, Etc.

CAPACITIES FROM 10 TO 200 TONS PER HOUR

More easily fed and makes less fines than either a jaw or gyratory crusher. Information and prices for the asking.

WE ALSO MANUFACTURE Double log washers, Ore jigs, Screens, All iron Elevators and Conveyors. Write for catalogue.

McLanahan-Stone Machine Co. Hollidaysburg, Penna.



Lewistown Foundry & Machine Co.
LEWISTOWN, PA.

Builders of heavy duty crushers and glass sand machinery. Glass sand plants equipped complete.

WRITE FOR PRICES AND CATALOG.

WEBSTER ELEVATING & CONVEYING MACHINERY

FOR SAND, GRAVEL
AND CRUSHED STONE PLANTS



Belt Conveyors
Continuous Bucket Elevators
Revolving Screens for Sand and Gravel
Open Top Carriers

THE WEBSTER M'F'G COMPANY
ENGINEERS, FOUNDERS AND MACHINISTS
TIFFIN, OHIO
NEW YORK—88 Reade St. CHICAGO—2410 West 15th St.

LEVIATHAN BELTING

is to be found in use in practically every important stone crushing and sand and gravel plant of the United States, and on sale by

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PHILADELPHIA CHICAGO NEW YORK BOSTON
PITTSBURG MONTREAL SEATTLE

"You can do without LEVIATHAN, but you cannot do so well."



THIS SIDE IS GREEN

GANDY

Stitched Cotton Duck Belting

after September 1st, 1911, will have one edge painted green.

The color of the GANDY BELT has always been a dark red—ever since it was first manufactured 34 years ago.

But in order to reap some benefit from the great reputation of the Gandy, other stitched cotton duck belt manufacturers also painted their belts red, and it is to add some distinctive marking, by which you can absolutely identify the GANDY that we have established the rule that every GANDY BELT will have one edge painted green, after Septemb r 1st, 1911.

Remember—there is only one GANDY BELT, made by the Gandy Belting Company of Baltimore, Md., the oldest and largest manufacturers of cotton duck belting in the world.

Always be sure to look for the trade mark, a coil of belt and a bale of cotton, also the green edge.

Get GANDY—It is only one-third the cost of leather, and 25% cheaper than rubber. The most durable and economical belt for driving, elevating and conveying.

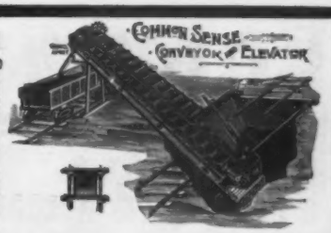
Prove this for yourself. Send for booklet and testimonial letters, which show how successful "The GANDY BELT" is in every line of industry. Also ask for sample.

Write for All This TODAY to

The Gandy Belting Co.
744 West Pratt Street, Baltimore, Md.
New York Office, 88-90 Reade St.



Send for Catalog 25



THE GENERAL CRUSHED STONE CO.,
So. Bethlehem, Pennsylvania,
have been using one of our Common Sense Elevators for six years—capacity 400 tons an hour.

THE C. O. BARTLETT & SNOW CO. CLEVELAND OHIO

"R. F. & C." Solid Woven Rubber Belt

Eliminates every rubber belt defect. Send for pamphlet "A Wireless On Rubber Belting."

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CHICAGO Established 1855 ILLINOIS

THE FULLER ENGINEERING CO.

Designing, Constructing and Operating Engineers
ANALYTICAL CHEMISTS
Cement, Hydrated Lime and Gypsum Plants a Specialty
OFFICES: Allentown Natl. Bank Bldg. - - ALLENTOWN, PA.

TISCO

Manganese Steel

JAW PLATES, CHEEK PLATES

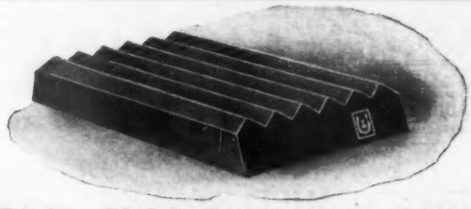
Toggle Plates and Toggle Bearings for

JAW CRUSHERS

do not chip or break, wear longest and are most economical. Send for Bulletin 104.

Does your banker use a TISCO Manganese Steel Safe?

Taylor Iron & Steel Co.
High Bridge, New Jersey



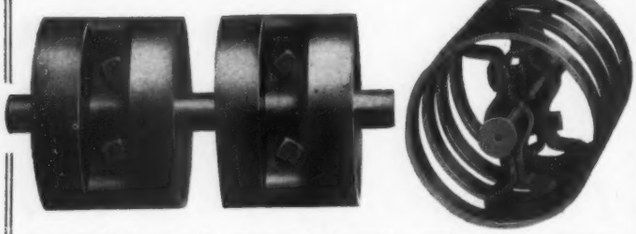
TITAN MANGANESE STEEL

UNEQUALED FOR WEARING PARTS OF JAW CRUSHERS GYRATORY CRUSHERS, CEMENT MACHINERY, COAL BREAKING MACHINERY, STEAM SHOVELS and DREDGES

SEND US YOUR INQUIRIES

TITAN STEEL CASTING CO., NEWARK, N. J.

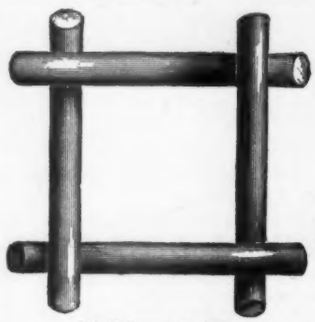
WE EQUIP STONE CRUSHING PLANTS
SAND & GRAVEL WASHING PLANTS
BELT CONVEYOR MACHINERY



Our belt idlers are steel. They are the strongest, most durable, most convenient idlers made. They are rapidly replacing cast iron pulleys. Write for particulars.

RAYMOND W. DULL & CO. Aurora, Illinois

BUFFALO WIRE WORKS CO.
BUFFALO, N. Y.



1-Inch Space, No. 4 Wire

We make

Wire Cloth

From the coarsest to the finest, for all purposes,

Also

WIRE CONCRETE REINFORCEMENT, WIRE WORK of all kinds, CORRUGATED WIRE "LATHING"

Send for Our No. 416 Catalogue.

SCREENS

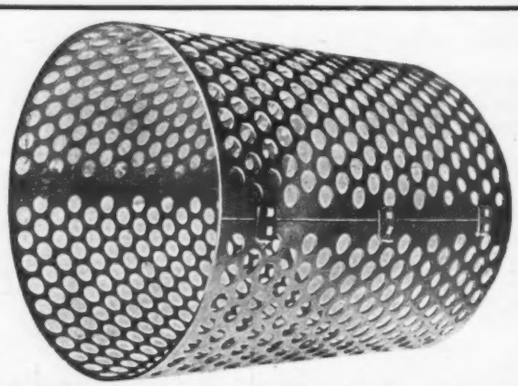
If you are interested in

Perforated Screens

and

Have Tried All the Rest, Why Not Try the Best?

Let us supply you with **our screens,** which are made from a **special Hard Steel,** especially adapted for **stone, ore, gravel, sand, etc.**



IT WILL PAY YOU TO INVESTIGATE

PRICE, MATERIAL and DELIVERIES Are Right

Revolving Screens, Suspension Screens
Trunion Screens, Shaker Screens
Hexagonal Screens, Jump Screens

If you don't see the screen you are looking for here, ask for it. We make it.

We Solicit Your Inquiries

BECKLEY PERFORATING CO., Garwood, N. J.

Send for Circular

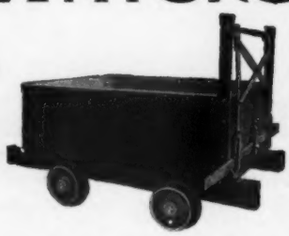
CARS — SCREENS — ELEVATORS



Buckets
Stone
Skips



Switches
Hoists
Portable Track



We are prepared to quote you on anything for your Quarry or Gravel Plant. Before placing your order be sure and get our Catalogue 31-R, and also our Prices and Deliveries.

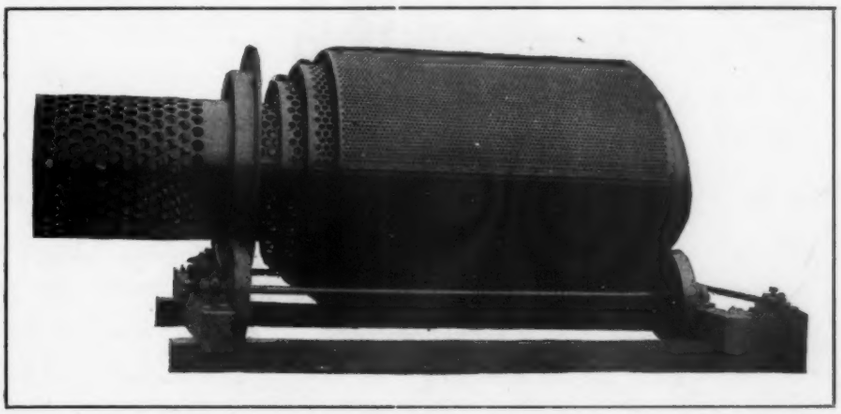
1679 ELSTON AVENUE

SACKETT---CHICAGO

If you are "from Missouri" or anywhere else "We can show you."

"SACKETT" { High Quality, Low Price, Prompt Delivery

JOHN O'LAUGHLIN'S SCREEN



made solely by **Johnston & Chapman,** is the

ONLY SCREEN

on the market for wide-awake quarry-men and miners, who want to separate crushed granite, limestone or other minerals. gravel, sand, coal or coke. It will soon earn its cost in saving of repairs, and maintenance, and reduced power, and will do more and cleaner work than any other cylindrical screen of like area. No one can afford to keep old traps in use when the **O'Laughlin** installed

NOW

will from the moment it starts give a better and larger product, and a big interest on your investment in continuous saving in cost of repairs, renewals, and power. For particulars, address:

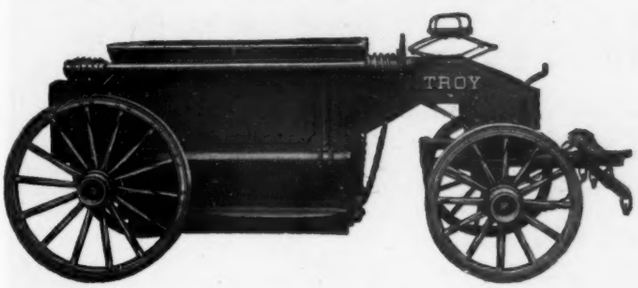
The advantages of these screens are described in detail in a circular which WE WILL MAIL TO ANY ADDRESS. Mr. John O'Laughlin, the inventor, has designed many notable improvements in rock-drilling, quarrying, crushing and screening machinery, and uses these improved screens in his own crushing plants, which others have declared "to be the most perfect in existence in every detail." The O'Laughlin Screen is an important factor in the most modern and perfect stone-crushing plant.

JOHNSTON & CHAPMAN CO.

Corner Francisco and Carroll Ave., Chicago, Ill.

Perforators of Sheet Metals, Flat, Cylindrical, and Conical Perforated Screen Plates for Quarries, Mines, Reduction Works, Mills and all Industrial Purposes.

On Your Job



Do you need a light wagon?
—Weight 1890 pounds.

Do you need a low down wagon?
—Height 4 ft. 8½ in.

Do you need a close coupled wagon?
—Wheel base 8 ft. 4 in.

Or a sturdy, dependable wagon?
—Capacity 6500 pounds.

You'll like the price, too.

GET CATALOG 2-P.

The Troy Wagon Works Co.

101 East Race Street

Troy - Ohio

STURTEVANT Ring-Roll Pulverizer



For Cement, Limestone, Phosphate, Quartz Granite, etc.

Take 1½ in. feed. Product 16 to 100 mesh. Output 1 to 15 tons per hour. Horse power from 15 to 45.

Only Four Wearing Parts
Last from 6 to 18 Months

Cost of Grinding less than any other. No slip, no rub, no fans, scrapers, plows, pushers or shields. No screens to clog or tear. A Simple and Accessible Grinder.

Sold on "Sale or Return" Contract

SEND FOR SPECIAL PROPOSITION AND CATALOGUE

Sturtevant Mill Co., Boston, Mass.



DURABILITY——STRENGTH——EFFICIENCY

Locomotives for contractors and light switching service around mines and industrial plants must stand the roughest, most severe service. To provide the necessary durability, strength and efficiency requires careful design, best materials and the most painstaking care in construction.

To the designing and building of locomotives for this class of service, the American Locomotive Company brings the knowledge accumulated during a period of over 75 years of locomotive building.

These locomotives have short wheel base and large boilers with surplus steaming capacity. They are simple in design, have a minimum number of parts, and are easy to repair from parts always carried in stock.

No effort is spared in the construction of these locomotives. Only the best materials are used, and every piece of material is thoroughly tested before it goes into a locomotive. It must conform to the same high standard as for 200-ton locomotives.

Let our engineers study your proposition and suggest a locomotive to meet your requirements. We guarantee results.

AMERICAN LOCOMOTIVE COMPANY

30 CHURCH STREET, NEW YORK

McCormick Building, Chicago
2101 Beaver Avenue, Pittsburg

401 Board of Trade Building, Scranton
41 Ottawa Bank Bldg., Montreal, Canada

N. B. LIVERMORE & CO., Salt Lake City, San Francisco, Seattle, Portland, Oregon

Marion Shovels for Rock Excavation

These shovels have been thoroughly tested and proven in all kinds of cement and rock work. They handle this most efficiently and economically. Write us and find out for yourself just how they do this.



Our Revolving Shovels are most popular where the output is limited, and economy is a vital consideration. One man can operate them.

These shovels can be mounted on railroad or traction wheels. They are built in three sizes, with dipper capacities, respectively, of ½ yd., ¾ yd., and 1¼ yd.

Ours is the largest plant in the world manufacturing Excavating Machinery exclusively.

Let us figure with you before you order that new steam shovel!

STEAM SHOVELS ELECTRIC SHOVELS REVOLVING SHOVELS DIPPER DREDGES SCRAPER BUCKET EXCAVATORS

SEND TODAY FOR CIRCULARS 65 AND 67.

The Marion Steam Shovel Company, Marion, Ohio

Chicago: 1442-3 Monadnock Block. New York: 50 Church St. Montreal: F. H. Hopkins & Co.



VULCAN

Heavy Duty Shovels

are built for heavy service. No work too hard for a VULCAN.

A VULCAN Heavy-Duty on the job will reduce the cost of your repair bills, up-keep and fuel consumption to the minimum and increase your output to the maximum.

They are built in all standard sizes from 45 to 120 tons, with 1½ to 5 cubic yard Dippers, and equipped for either Steam or Electric Power.

Let us figure with you on your requirements and prove to you at what a low cost you can handle your rock and other heavy material.

We also build the well known Little Giant Shovel of which over four hundred are in use throughout the country.

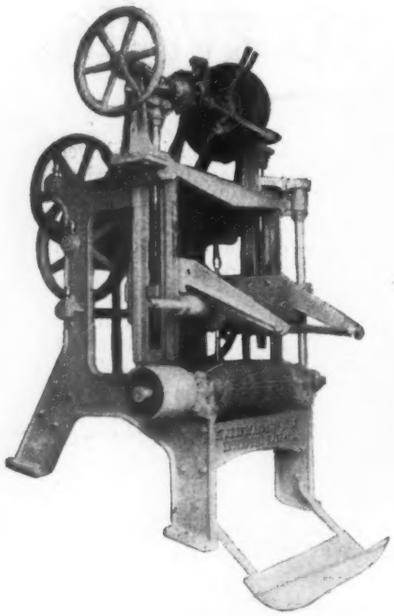
Revolving Shovels, Locomotive Cranes and Dipper Dredges.

Write today for full information and prices.

THE VULCAN STEAM SHOVEL CO., Toledo, Ohio

EASTERN OFFICE, 50 CHURCH STREET, NEW YORK

Tell 'em you saw it in ROCK PRODUCTS



Points of Interest Concerning

The Ehrsam Wood Fibre Machine

The log feeds itself to the saw. As the log decreases in diameter the Speed of the log and of the feed INCREASES AUTOMATICALLY.
In other words, the Peripheral Speed remains constant.
The feed of the log to the saw is in direct proportion to the speed of the log.
This automatic uniformity of feed INSURES UNIFORMITY of FINENESS in the PRODUCT.
No frictional devices are used, none being necessary.
All the working parts are planed. All of the gears are cut from solid steel.
All of the parts are interchangeable and numbered, so that duplicate parts can be quickly obtained and easily put in position
The Saw mandril is extra heavy and made of the best crucible steel.
The journals are chain oiling. No machine can be more substantially built. Write for full information.

Okeene, Okla., June 14, 1911.

J. B. Ehrsam & Sons, Enterprise, Kans.,
Gentlemen:—Some time ago I received a letter from you asking how the wood fibre machine you shipped us is doing. Will say it is the best I ever used. In regard to any suggestions I could make as to how it might be improved, will say that I can make none, as it is O. K. Yours truly,
SOUTHWEST CEMENT PLASTER CO.,
Frank Dodge, Sup't.

Manufacturers of Jaw and Rotary Crushers for Gypsum, Vibrating Screens, Hair Pickers, Wood Fibre Machines, Calcining Kettles, Plaster Mixers, Power Transmission

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The Enterprise Vertical Burr Mill

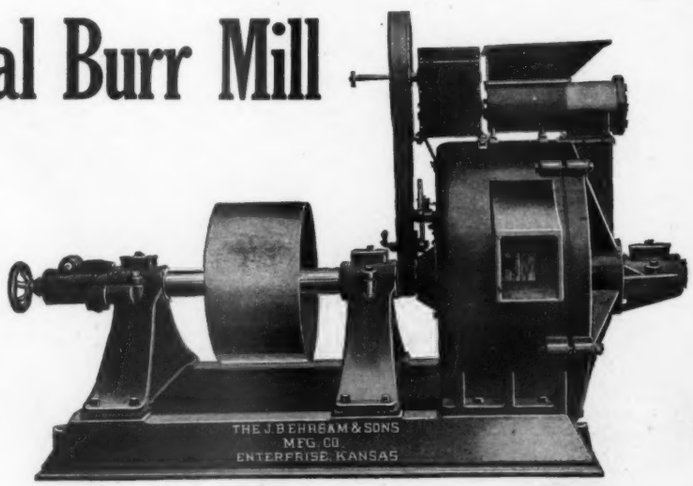
is especially designed for grinding gypsum, limestone, coal, coke, paint, rock, foundry facing, carbon, salt, and other similar substances.

It is STRONG and DURABLY built.

Has INTERCHANGEABLE STONES, which can be easily removed for dressing and replaced.

Is provided with our POSITIVE CONTROLLABLE FEEDER, which feeds an absolutely uniform stream into the mill at the required capacity.

MANY OTHER ADVANTAGES.



The J. B. Ehrsam & Sons Mfg. Co.

Designers and Builders of

Complete Equipment for Plaster Mills

ENTERPRISE, KANSAS, U. S. A.



THE LOGICAL LATHING MATERIAL
THE BEST IN HARD WALL PLASTER

Which is the Better Way for YOU?

Using your time and energy in selling ordinary plastering materials with limited possibilities and small profits

OR

handling **new, up-to-the-minute** products for which a growing market has been created which carry with them the enthusiastic co-operation of a progressive institution and which insure you **easily made** and **constantly increasing profits?** That's the question we want you to answer. Because that's the difference between selling the ordinary line of plastering materials and handling

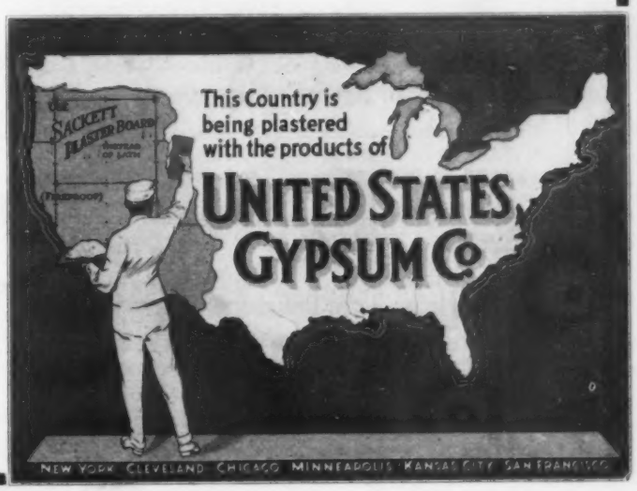
U. S. GYPSUM PRODUCTS

We are not satisfied with unequaled quality alone. We aim to sell our products **for** the dealer as well as **to** him—we back him up first, last and **all** the time with courteous, careful attention, and complete and generous co-operation.

These are some of the reasons why you're missing something if you're not handling **U. S. GYPSUM PRODUCTS.** Some of the reasons why you should be selling

SACKETT PLASTER BOARD
Instead of lath
U. S. G. WALL PLASTERS
U. S. G. FINISHING PLASTERS
PYROBAR GYPSUM TILE
(For Fireproof Partitions)
GYPSINITE STUDS
(A Gypsum Fireproof Stud)
ADAMANT EXTERIOR PLASTERS

Because they mean more profits for you and greater satisfaction to the user. It will pay you to put our service and co-operation to test.



Improved
Modern
Lath

TRADE MARK
J.B. KING & CO.
FIBROUS PLASTER BOARD
DIAMOND BRAND
NEW YORK
REGISTERED IN U. S. AMERICA

Fire-Proof
Insulating
Sound-Deadening

King's Fibrous Plaster Board

Standard Size 32' x 36'

THE RESULT OF "TRADE DEMANDS"

STRENGTHENED to stand the GREATEST STRAIN to which such material is subjected
TOUGHENED to a woody consistency to stand NAILING AND HANDLING

SHIPMENTS made to dealers of STRAIGHT OR MIXED CAR LOADS

KING'S FIBROUS PLASTER BOARD

CALCINED PLASTER
MOULDING PLASTER
FINISHING PLASTER
WOOD FIBRE PLASTER
NEAT WALL PLASTER
SANDED PLASTER
MARBLE DUST

PLASTER BOARD NAILS

SERVICE The location of our works at the greatest railroad terminus in the East and our several warehouses enable us to make **Prompt Shipments at all times.**

J. B. KING & CO.

Plaster Board Department:
17 State Street, New York, N. Y.

WAREHOUSES:
Boston, Mass. Providence, R. I.
Chester, Pa. Hartford, Conn.
Norfolk, Va. Buffalo, N. Y.
Brunswick, Ga.

WORKS:
New Brighton, Staten Island,
NEW YORK

Dakota Plaster Co.



WE MAKE THE FAMOUS

"Black Hawk"

AND

"Dacotah"

Hair and Wood Fibred Plaster

Our Plaster is pure white; uniform in color; carries more sand, works easier and makes the hardest wall. Our Mill is thoroughly equipped with the most modern machinery, and we are always in a position to make prompt shipment. We guarantee every sack of our plaster.

Dakota Plaster Co. Rapid City, S. D. Black Hawk, S. D.

CUMMER CONTINUOUS PROCESS

FOR

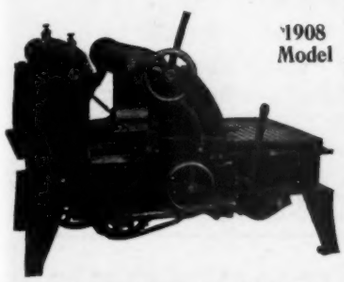
CALCINING GYPSUM

NO KETTLES USED — PLANTS IN OPERATION

Great Saving in Cost of Manufacture and Quality of Product Guaranteed.

The F. D. CUMMER & SON CO., Cleveland, O.

The Shuart-Fuller Improved Fiber Machine



1908 Model

Has an automatic, proportional, increasing feed, which keeps grade of fiber uniform from start to finish, and holds machine to highest possible rate of production for the grade of fiber and number of saws. Does not begin with fiber and end with dust, nor fall off in rate of production on each log, from 40 to 80 per cent as do the ordinary non-increasing feed machines. Works logs up to 24x24 inches. No royalty string attached to sale. Pay no attention to misrepresentations of our competitors, but write for descriptive circular and terms to

The Shuart-Fuller Mfg. Co.

ELYRIA, OHIO

THE SHUART-FULLER CO., Elyria, Ohio.

St. Louis, June 17, 1907.

Gentlemen:—We are just in receipt of advice from our New Mexico plant wherein they state that the Wood Fiber Machine recently shipped by you is doing all that we have asked of it and running very fine.

ACME CEMENT PLASTER CO.,
By Jas. R. Dougan, Sec.



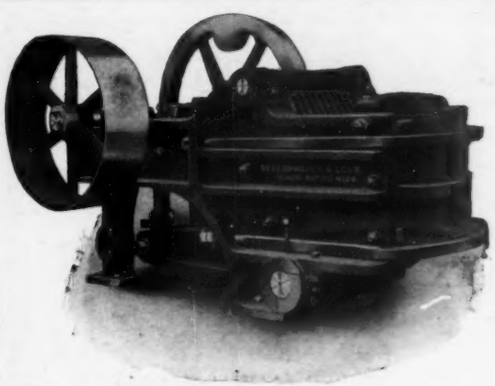
PLYMOUTH PLASTER
WOOD FIBER PLASTER
PLYMOUTH FIREPROOF
PARTITION BLOCKS
PLASTER BOARD
STEEL STUDDING

THE QUALITY BRANDS

WRITE US FOR PRICES AND ADVERTISING MATTER

Plymouth Gypsum Co.

Fort Dodge, Iowa



Nippers—made in 3 sizes.

Jaw and Rotary CRUSHERS

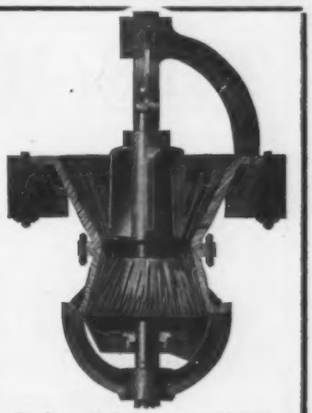
For all Rocks and Ores Softer than Granite

GYPSUM MACHINERY—We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

Special Crusher-Grinders for Lime

Butterworth & Lowe

17 Huron Street, Grand Rapids, Mich.



Crackers—5 sizes—many variations.

GET THE BEST

Finest Line of Gypsum Machinery

MADE

KETTLE CRUSHER NIPPERS

ASK FOR CATALOG OF

MOGUL NIPPERS. OPEN DOOR POT CRUSHERS

Best Mills in the United States Have Them

McDONNELL BOILER & IRON WORKS, Des Moines, Iowa, U. S. A.

"Formerly Des Moines Mfg. & Supply Co."

PEERLESS

means without an equal and that is what our products are beyond the shadow of a doubt.

Peerless Plaster-Board

The Best on the Market To-day

Peerless Plaster Board has no superior on the market today. Strength, durability, and uniformity in thickness with clean cut edges are its chief virtues.

Peerless Plaster Board finished with **Peerless Plaster** make a Peerless Wall. Builders' Supply Retailers say it is the best Plaster Board manufactured. If you are "from Missouri" write us today for sample and prices.

Write today for our
PEERLESS PROPOSITION





Peerless Cement Plaster
Peerless Wood Fibre Plaster
Peerless Sanded Plaster
Peerless Ready Finish
Peerless Portland Stucco
(Exterior Plastering)

We Ship Mixed Cars of Plaster and Board

Peerless Plaster Board comes in sheets 32 inches by 36 inches.

Peerless Plaster Board is a fire retardent and an efficient sound deadener.

Peerless Plaster Board is a non-conductor of heat and cold.

Peerless Plaster Board is an insurance against cracks, buckles, and lath strains.

Get in line with
THE PEERLESS LINE
WRITE TODAY

M. A. REEB, : Buffalo, New York

THE NATIONAL RETARDER CO.

Mills at

Webster City, Iowa
Port Clinton, Ohio

Successors to

The Chemical Stucco Retarder Co.
Webster City, Iowa

The Ohio Retarder Co.
Port Clinton, Ohio

The Binns Stucco Retarder Co.
Uhrichsville, Ohio

The same standard quality of retarder will be produced and marketed by the same people at the right price—only a change in name of corporation.

MAIL ORDER TO NEAREST MILL FOR PROMPT SERVICE

NIAGARA

Wall Plasters Have Greater Covering Capacity, Work Smoother Under the Trowel and Have Greater Final Strength

Niagara Neat Cement

Niagara Sanded Mortar

Niagara Wood Fiber (Wood Pulp)

in 100-lb. Jute Sacks and 80-lb. Rope Paper Sacks. Mixed Car Loads of Wall Plasters, Hydrated Finishing Lime, Plaster Board, Land Plaster and Calcined Plaster for Finishing Purposes. These Products Mean Money to the Dealers in Builders' Supplies. Write today for prices.

NIAGARA GYPSUM COMPANY

BUFFALO, NEW YORK

ATTENTION! ARCHITECTS & DEALERS

"IT SPREADS LIKE BUTTER"

Which? — **"Wheeling"**

Why? — **Better Walls, Best Service, Right Prices**

We want to make this, our tenth year in business, the biggest and best of all, both for our customers and ourselves mutually. Write us, Results will follow. Our booklet "Better Walls" for the asking.
WILL YOU JOIN THE "WHEELING" FAMILY?

Wheeling Wall Plaster Co., Wheeling, W. Va.

KING'S WINDSOR CEMENT
FOR PLASTERING WALLS AND CEILINGS

Buffalo Branch, CHAS. C. CALKINS, Manager
322 W. Genessee Street.

Not the hardest, but the toughest and best Wall Plaster made—Can be applied with less labor. Has greater covering capacity than any other similar material

J. B. KING & CO., 17 State Street, New York.

NO OCCASION TO WORRY
IF YOU USE
ILLINOIS LEATHER COMPANY'S
HAIR
EITHER CATTLE OR GOAT
STRENGTH—UNIFORMITY—RELIABILITY
WRITE FOR SAMPLES AND PRICES
930 NORTH HALSTED STREET
CHICAGO, ILL.

C. B. SHEFLER, Pres. and Mgr.
N. C. FISHER, Sec. and Treas.

All Telephones Main 4827
Automatic 33-304

Refer to Page 50



A Stonekote House

The Garden City Sand Co.

Portland Cement, Builders' Sand, Moulding Sand, Fire Sand, Stonekote, Hard Wall Plaster, R. I. W. Damp Resisting Paint, All Kinds of Building Material

FIRE BRICK AND FIRE CLAY

708-709-710-711 Chamber of Commerce Building CHICAGO, ILL.

All the Latest Books Bearing on the Trade

See List on Page 68

CLINTON METALLIC PAINT CO.

CLINTON, N. Y.
LARGEST AND OLDEST MANUFACTURERS OF
BRICK AND MORTAR COLORING

Be sure you get the genuine with the "Little Yellow Side-Label" on each package.

Let us tell you about Side-Walk Black.

It Pays to Advertise in
ROCK PRODUCTS
Seeing is Believing and Trying is Convincing

W. J. FULLER, PRESIDENT — M. E. FULLER, VICE PRESIDENT — E. J. FULLER, SEC'Y-TREAS.

Manufacturers of
The Improved Fuller Wood Fiber Machine
The Fuller Force Feed Oil Pump
Fuller Metallic Packing For All Purposes
Special Machinery Designed and Built

The Shuart-Fuller Manufacturing Company
INCORPORATED

Telephone 211
Elyria, Ohio, 5/9/1911.

RECEIVED 1910 Answered ____ 6-4

The Francis Publishing Co.,
Chicago, Ill.

Gentlemen:

Replying to your inquiry of the 3d inst., we are compelled to say that the "Rock Products" is the best advertising medium for our line of business that we have been able to find, in fact we can safely say that 90% of our new customers are obtained through our advertisement in the "Rock Products"

Yours truly,
THE SHUART-FULLER MFG. CO.
E. J. Fuller
Secy & Treas.

PAUL GRIESEDIECK, PRESIDENT — GEO. C. VIBETTO, SECRETARY — E. H. ELZEMEYER, TREASURER

AMERICAN PULVERIZER CO.
PULVERIZERS
REVOLVING SCREENS
AIR SEPARATORS
GENERAL OFFICES
SUITE 410 MERMOD-JACCARD BLDG.

St. Louis, Mo. May 11th, 1910.
(Dic. May 10th, 1910.)

RECEIVED 1910 Answered ____ 6-4

WATCH THE RING
THE AMERICAN RING-HAMMER PULVERIZER
WILL PULVERIZE
FIRE CLAY
SHALE
CLAY
COAL
COKE
BARYTES
OCHERS
PHOSPHATE ROCK
LIMESTONE
ASPHALT ROCK
QUARTZ ROCK
KAOLIN
CHARCOAL
BONE
CORN COBS
FIRE SCRAP
CEMENT CLINKER
OYSTER SHELLS
GUANO
SOAP STONE
SAND STONE
TANKAGE
OIL CAKE
CARBON
BRICK BATS
ORE ROCK
DRUGS
FERTILIZER MATERIAL
GLUE STOCK
GRANITE ROCK
MINERAL PAINTS
SLAG
SUGAR, ETC.

Rock Products,
355 Dearborn st.
Chicago, Ill.

Gentlemen:-

Replying to your inquiry of the 3rd inst. re the value of our advertisement in your journal, would say that no other journal, involving equal expense, has given us better returns. We are getting value received with a premium attached for every square inch of space occupied in your journal and for every dollar we invest in same.

Yours very truly,
Geo. C. Vibetto



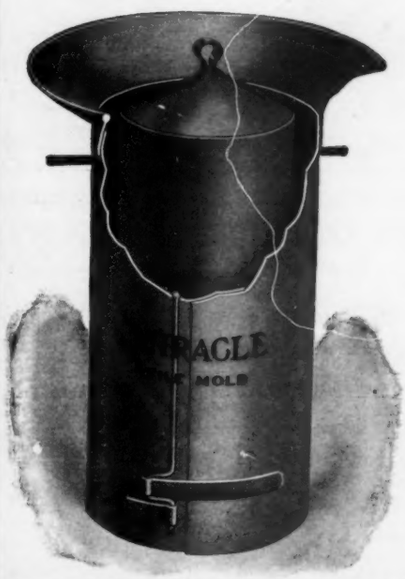
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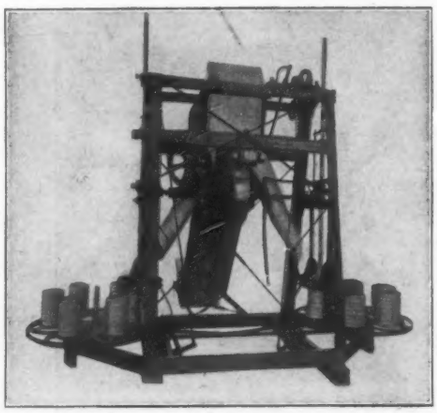
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THE

McCracken Double Tile Machine



The McCracken Double Tile Machine makes all sizes of cement tile from 4 to 16 in. in diameter at the rate of from 10 to 20 tile per minute. Also makes building blocks or construction tile 8x8x16 at the rate of 2000 to 3000 per ten hour day.

The machine will make two different sizes of tile at the same time or building blocks and tile at the same time, or either end of machine can be used without using the other.

The machine has no cams and runs just as smooth at high speed as when running slow. Takes less labor per 1000 tile than any other machine.

Tile are packed so hard that the large sizes can be carried without the use of pallets. Machine is very simple and strong and runs very light, and elevator can be started and stopped without stopping the machine.

See the McCracken Machine before you buy. Write to

The Sioux City Cement Machinery Company
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IMPORTANT



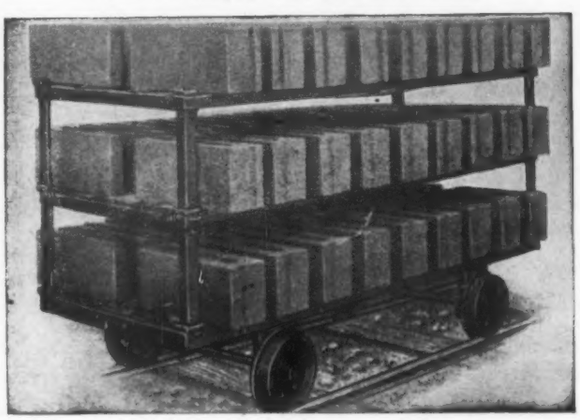
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COLUMBUS, OHIO

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Machines have been in constant use since July 1st, 1905, with practically no expense for repairs.

The machine handles sand, gravel, crushed rock, slag and coloring materials perfectly.

All materials accurately measured, thoroughly mixed and uniformly pressed under 200,000 pounds pressure.

Makes 8, 9 and 12x8x24 inch blocks in five faces, and fractional and angle blocks.

Machine can be arranged to make **Two Piece** and **Faced** Blocks, if desired.

All machines delivered set up and put in operation to show a guaranteed capacity of 60 blocks (12x8x24 inch) per hour with five men.

Blocks perfectly cured in 24 hours in Vapor Curing Kilns of our own design.

Full details, catalog, testimonials, etc., sent upon request.

THE PERFECTION BLOCK MACHINE CO.
SIOUX FALLS, SOUTH DAKOTA.

PERFECTION IN BLOCK MAKING

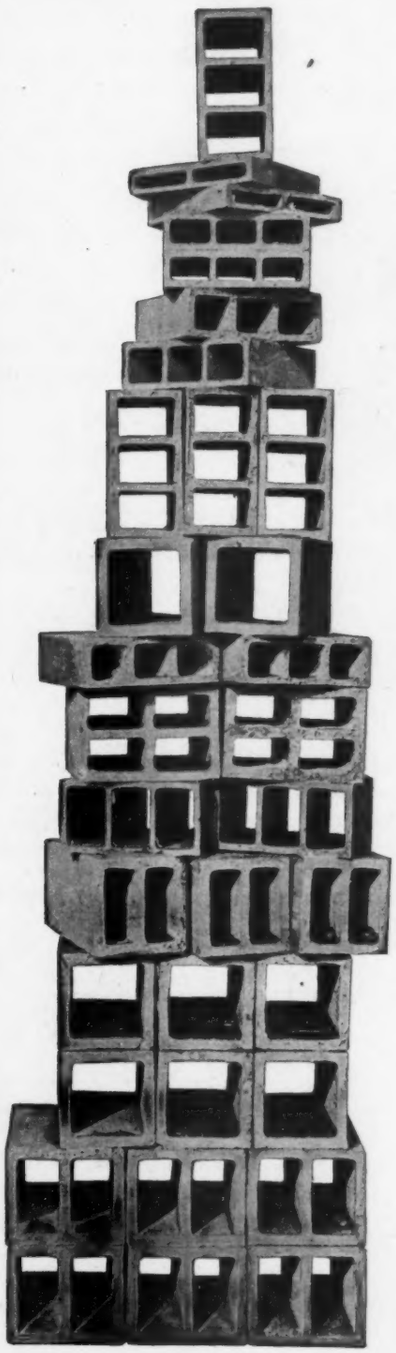
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Has The First *Pauly* Concrete Tile Plant Been Successful?

This question, which is usually first asked us by interested parties, is best answered by two facts:—1. During the year of 1909, the demand in Youngstown, Ohio, could not be satisfied, and (2) the plants capacity output is sold until the middle of the summer of 1910, **in the City of Youngstown alone.** In this connection it might be stated also that 4 tiles of our most common size, 8x8x16, can be manufactured from one cubic foot of concrete, with a labor cost of 50 per cent of the cost of concrete anywhere east of the Mississppi.

A weatherproof home of fireproof material can now be built for almost wooden construction cost. These points have been clearly demonstrated in Youngstown by practical use of ***Pauly*** Concrete Structural and Fireproofing Tile, in a variety of buildings. The result gained has not only been a financial success, but also an enviable position in the estimation of the entire building public.

Persons interested in this practical and profitable phase of the concrete business, are always welcome by the The Concrete Stone & Sand Co., Youngstown, Ohio, where they will be shown every detail of the initial factory.

Our 1910 Catalog

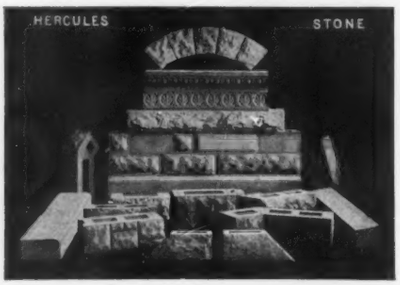
Gives the method of manufacture, fire and compression test data, and the endorsements of local architects and other building authorities. Also many other articles and illustrations of interest to the general public. May we send you, postpaid, a copy of our Catalog?

The Concrete Stone & Sand Co.
Youngstown, Ohio.



Hercules Blocks

Sell on Sight



The dense non-porous blocks of Cement Stone made on

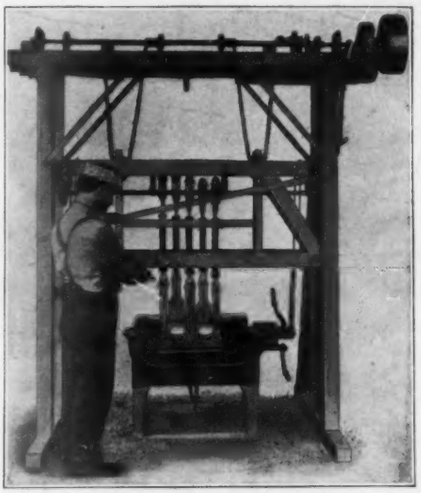
Hercules Block Machines

satisfy the eye of the most critical architect or house builder. It is one of the chief merits of the Hercules Machine that it permits blocks to be made of WET concrete. This results in greater density, greater strength and greater water proofness. The Hercules is the only machine that expands with the requirements of your business. The only machine that makes dimension stone up to Six Feet long.

The Hercules is built upon one solid frame 6 feet long. If your demand is just for an 8x8x16 block, you only need the mould box for that size. As your trade increases, you merely add new plates to be attached to your original machine. You don't have to buy a new machine every time you wish to make a different size. There are many other points connected with Hercules machines you ought to know. These are fully told in a "little book" we have just issued. Send for it today.

Century Cement Machine Co.

288-298 St. Paul St., Rochester, N. Y.



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has proven to the many users that it does more to improve the quality of block and reduce the cost than any machine ever put on the market for concrete block making. One of the great features of the Kramer Tamper is its speed. It will strike more blows per minute than twenty-five men can and will tamp a block in ten seconds, so dense, making the consistency so plastic, that more water can be used without sagging the blocks, when withdrawing the cores, and taking them to curing room. This machine will save you from $8.00 to $12.00 per day on labor and cement, and the blocks that are tamped in the afternoon are as uniform as those tamped in the morning. Write us to-day for full particulars.

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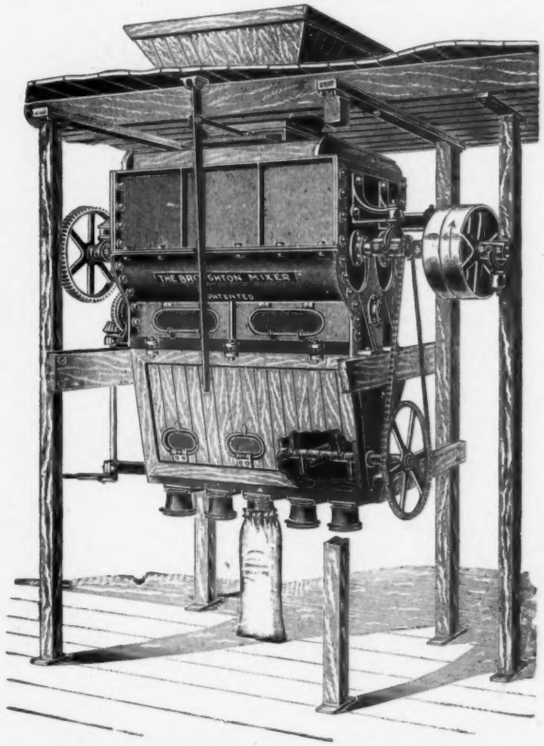
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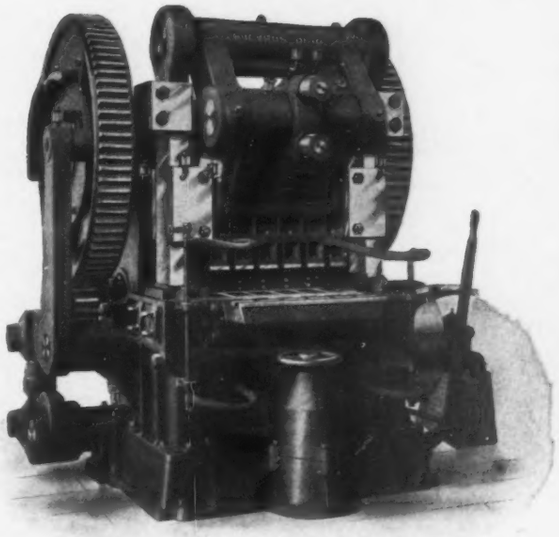
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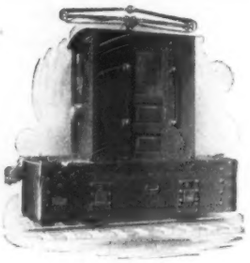
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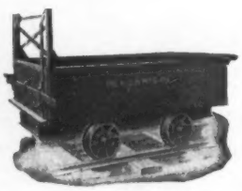
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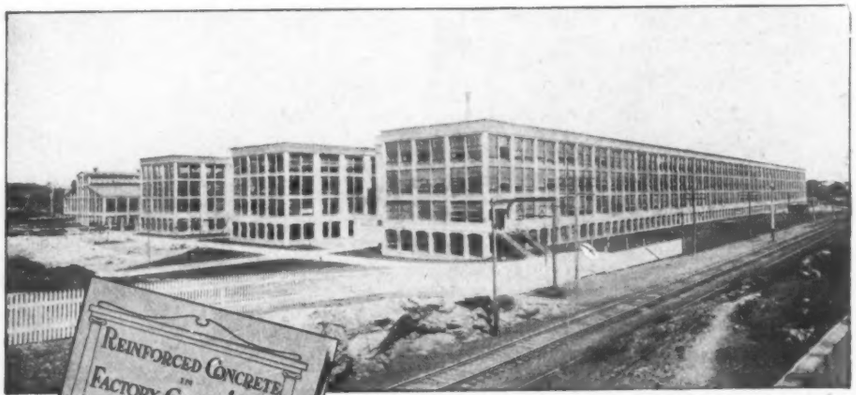
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